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**From:** Joanne Ivancic Advanced Biofuels USA [info=advancedbiofuelsusa.org@mail164.suw101.mcdlv.net]  
**on behalf of** Joanne Ivancic Advanced Biofuels USA [info@advancedbiofuelsusa.org]  
**Sent:** 8/21/2018 8:47:06 PM  
**To:** Argyropoulos, Paul [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=0149b93d2780437a9c2b6d8477df7991-pargyrop]  
**Subject:** Policy, Regulations, Legislation, Litigation, Open for Public Comment -- August 2018 from Advanced Biofuels USA

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## Open for Public Comment

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The Safer and Affordable Fuel Efficient Vehicles Proposed Rule for Model Years 2021-2026 COMMENTS DUE: October 2, 2018

(Environmental Protection Agency) The National Highway Traffic Safety Administration (NHTSA) and the Environmental Protection Agency (EPA) propose to amend certain existing Corporate Average Fuel Economy (CAFE) and greenhouse gas emissions standards for passenger cars and light trucks and establish new standards, covering model years 2021 through 2026. Public Comments: The EPA docket ... [Read Full Article](#)

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### E10 Petrol, Consumer Protection and Fuel Pump Labelling UK COMMENTS DUE September 16, 2018

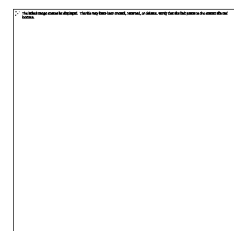
(UK Department for Transport) Seeking views on a range of issues related to renewable transport fuel supply in the UK. — Unleaded petrol in the UK contains up to 5% bioethanol, a grade known as E5. E10 petrol contains up to 10% bioethanol and is not yet available in the UK. This ...[Read Full Article](#)

### MORE OPEN PUBLIC COMMENT REQUESTS

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## **2018 US Senate and House Elections**

Biofuels should be an issue during this year's US Senate and House of Representatives elections. We'll follow developments [here](#) and on our [website](#) with category, [2018 Election Activities](#) and tag, [2018 US Senate and House Campaigns](#) .





## Latest Federal Legislation Posts



**Carbon taxes** or a **price on carbon** and the **Farm Bill**, particularly the **Energy Title**, are the hot legislative topics of the month, along with discussions about whether legislation is needed to provide a federal OK for **year-round E15** sales to non-flex fuel vehicles.

For more legislative news (including Executive Orders), [click here](#).

We also follow [policy developments](#) in the US, other countries and states. For more information on those topics, click on the name of the country or state that appears along the right margin of the website.

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### NBB Asks Farm Bill Conferees to Support Biodiesel Programs

(National Biodiesel Board) National Biodiesel Board sends letter reiterating support for passage of a new Farm Bill — Today (August 16, 2018), the National Biodiesel Board sent a letter to leaders of the Farm Bill Conference Committee, reiterating the industry's strong support for passage of a new five-year Farm Bill (Agriculture Improvement Act of 2018)

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### Trump's Plan to Boost Ethanol Could Quickly Get Sidelined

by John Siciliano (Washington Examiner) ... On top of that, a senior Senate aide close to the pro-ethanol camp led by Sen. Chuck Grassley, R-Iowa, said "there is debate" over whether it will take legislation to enact the changes Trump seeks. "We view it as a technical correction," the aide...

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### Iowans Tell EPA Chief President Made E15 Promise, It's Time to Deliver

by O. Kay Henderson (Radiolowa) The U.S. Environmental Protection Agency's acting administrator met privately with Iowa commodity group leaders at the Iowa State Fair today — but Andrew Wheeler told reporters afterwards there is no decision yet on regulations that would allow a higher blend of ethanol to be sold year-round.

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### Trump Admin Sees Grim Climate Outcome in Car Rule

by Zack Colman and Scott Waldman (E&E News) The last time carbon dioxide levels hit the mark the Trump administration envisions for the end of the century, crocodiles roamed the poles and palm trees existed where glaciers are today. In fact, there were no glaciers — not even in Antarctica. Although the...

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### Why Hasn't the US Put a Price on Carbon Yet?

by Hugh C. Welsh (Real Clear Energy) It's time to rethink how our country approaches carbon dioxide (CO2) emissions from the use of fossil fuels. Right now, we know that the release of CO2 damages the environment but emitters bear none of the cost. American tax payers, meanwhile, are subsidizing these

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### Leahy among Lawmakers Taking Farm Bill to Conference

(WCAX) Both houses of Congress have passed their respective versions of the Farm Bill, a massive piece of legislation that affects farmers around the country. Now, a bipartisan group of lawmakers, including Vermont Sen. Patrick Leahy, will try to come together to pass one version of the bill. Farm bill negotiations ...

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### House Moves forward on Ethanol Reform, but No Bill Yet

by John Siciliano (Washington Examiner) The House Energy and Commerce Committee is on course to create legislation to develop a national biofuel program

that places consumers first, said Rep. Greg Walden of Oregon, the Republican chairman of the committee, on Wednesday. The committee's environment panel held its fifth hearing Wednesday on

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### More Support for Carbon Utilization in Congress

(Algae Biomass Organization) This month the momentum for supporting technologies that put carbon dioxide and other greenhouse gases to good use got a boost in Congress with the introduction of the bipartisan Carbon Utilization Act of 2018. The House bill would support utilization technologies, such as algae cultivation, by allowing them ...

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### Bioenergy (Biofuels/Biomass) RFS Roundup: To Grow Cellulosic Fuel Volumes, Address Low Hanging Fruit in RFS Changes

by Jessie Stolark (Energy and Environmental Study Institute) On Wednesday July 25, the House Energy & Commerce Committee held a hearing to educate members on the complexities of the compliance markets for biofuels, as Environment and Economy Subcommittee Rep. Shimkus (R-IL), chair, explores reforming the Renewable Fuel Standard (RFS). Shimkus (R-IL)

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### New Bill Introduced Recognizes Benefits of Natural Gas for Vehicles

(VNG/NGVAmerica/NGV Journal) On July 23, U.S. Rep. Bill Johnson (R-Marietta) introduced HR-6476 the Light-Duty Natural Gas Vehicle Parity Act of 2018 in the US House of Representatives, a companion to Senate bill 3226 introduced by Sen. James Inhofe (R-OK) on July 17 in the US Senate. This initiative affirms congressional intent ...

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### Shuster Infrastructure Draft Boosts Gas Tax in Short Term

by Kelsey Tamborrino (Politico's Morning Energy) House Transportation Chairman Bill Shuster released his long-awaited infrastructure discussion draft on Monday. The Pennsylvania Republican proposes a short-term boost to the gasoline tax before ending the tax in a decade, as Pro Transportation's Lauren Gardner reports. The effort would boost taxes on gasoline

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### United Front ... Octane Is Important

by Tim Albrecht (Ethanol Producer Magazine) Experts in multiple industries support the idea of a high-octane fuel standard, but some prefer it as a replacement to the RFS. — Octane is important. The ethanol industry knows this, the automakers know it and even the oil industry understands it. But when it comes

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### Emissions, Energy, and Economic Implications of the Curbelo Carbon Tax Proposal

(Columbia University's Center on Global Energy Policy) In July 2018 Representative Carlos Curbelo proposed legislation that would put a price on US carbon dioxide emissions ("Curbelo proposal"). A carbon price is widely viewed as a necessary part of a cost-effective national strategy to address the risks of climate change. This proposal ...

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### Carbon Taxes Would Drive GHG Emissions Reductions with Minimal Impact on U.S. Economy, Oil and Gas Production

(Columbia University's Center on Global Energy Policy) A series of four reports released today by Columbia University's Center on Global Energy Policy and partners assesses the economic, energy, and environmental implications of federal carbon taxes. The reports analyze various carbon tax legislation scenarios, finding that carbon taxes would increase government revenue ...

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## House Votes to Denounce Carbon Taxes. Where Was the Climate Solutions Caucus?

by Marianne Lavelle (Inside Climate News) Only 4 of the 43 Republicans who claim membership in the Climate Solutions Caucus voted against the resolution. All were early members of the group. The U.S. House of Representatives on Thursday passed a resolution denouncing the idea of a U.S. carbon tax as detrimental

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## All Eyes on Carbon Tax Vote

by Kelsey Tamborrino (Politico's Morning Energy) CARBON COPY: Today's largely symbolic vote on an anti-carbon tax resolution could offer Republicans helpful campaign-trail fodder against Democrats — but it comes with a price tag for some of the House's most endangered moderates. Pro's Anthony Adragna reports this morning on the dilemma facing

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## White House 'Concerned' that House Bill Doesn't Cut EPA Funding Enough

by Niv Elis (The Hill) The White House is expressing concerns that a funding bill set for a vote Thursday in the House does not make deep enough cuts for agencies such as the Environmental Protection Agency (EPA). The House is debating a package of two spending bills, one for Financial ...

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## **Latest on Federal Regulation**



The "small refinery" waivers, CAFE (Corporate Average Fuel Economy) mid-term review issues and challenges to California's authority to set vehicle pollution control standards remain in the spotlight. And the E15 RVP waiver remains unresolved.

Trade barriers and tariffs and a \$12 Billion aid package to alleviate resulting suffering in the agricultural sector received plenty of attention this month, too, with a common refrain that farmers would prefer enhanced trade to payoffs or handouts.

Scroll down for details, for information about regulations related to these topics and others.

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### NBB Shows Higher 2020 Biodiesel Volumes Are Achievable in Comments on Annual RFS Rule

(National Biodiesel Board) NBB also proposes multiple solutions to accounting for small refinery exempted volumes — Today, the National Biodiesel Board filed comments on the proposed Renewable Fuel Standards for 2019 and Biomass-Based Diesel Volume for 2020. NBB's comments respectfully urge the Environmental Protection Agency in the final rule to increase the [Read Full Article](#)

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### King Says Farmers Want EPA Action on Ethanol, not \$12 Billion Aide Package

by O. Kay Henderson (Radiolowa) Republican Congressman Steve King today said the best thing the Trump Administration could do to alleviate farmers' angst about the trade war would be to allow higher percentages of ethanol to be blended into gasoline year-round. "Let the market determine what that blend could be It could [Read Full Article](#)

## Earnings Season: as Novozymes, DSM, Amyris, Gevo, Corbion, and Aemetis Report, Who's up, Who's down?

by Jim Lane (Biofuels Digest) In today's Digest, let's look at trends driving the industry's results at scale — and while money is not the measure of all progress, it is the ultimate yardstick and especially for companies that have reached industrial scale. So, let's look at Q2 earnings statements now [Read Full Article](#)

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## How Progressives Can Reconnect with Rural Voters

by Patty Judge (Des Moines Register/Focus on Rural America) ... Many of the political elites on the coasts have argued that progressives should simply write off the rural Midwest because it is too white, too old and too conservative to ever support a progressive national candidate. In 2017 Focus on Rural [Read Full Article](#)

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## Has Ethanol Hit Its Peak?

by James Osborne (Houston Chronicle) More than 15 billion gallons of ethanol flows into the U.S. fuel supply each year, big business for midwestern corn farms and a drag on oil refineries in Texas. But with the U.S. Environmental Protection Agency now exempting smaller refineries from the federal mandate they blend [Read Full Article](#)

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## Uncovering the Plot to Keep Ethanol Down — How Clean Burning Ethanol Can Make Rural America Great Again

(Urban Air Institute) A paradigm shift is needed in Washington, and it's up to Rural America to push for change. "We need to join together and demand access to cleaner burning ethanol, which will help American farmers and improve the air our entire nation breathes," according to Urban Air President Dave VanderGriend. [Read Full Article](#)

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## Grassley Gets Local Perspective on Ag

by Seth Boyes (Dickinson County News) Steffes Company in Milford played host to U.S. Sen. Chuck Grassley on Monday Aug. 6. ... "If you're a member of Congress, you can't keep your mouth shut if you think the president's hurting your people," he said. He went on to say the president seemed

[Read Full Article](#)

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## Pacific Ethanol Discusses Impact of Trade Barriers, EPA Actions

by Erin Voegele (Ethanol Producer Magazine) Pacific Ethanol Inc. released second quarter financial results on Aug. 9, reporting a slight increase in net sales. The company also discussed how current trade barriers and the U.S. EPA's administration of the Renewable Fuel Standard are reducing short-term demand for ethanol. "Even with

[Read Full Article](#)

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## Iowans Tell EPA Chief President Made E15 Promise, It's Time to Deliver

by O. Kay Henderson (Radiolowa) The U.S. Environmental Protection Agency's acting administrator met privately with Iowa commodity group leaders at the Iowa State Fair today — but Andrew Wheeler told reporters afterwards there is no decision yet on regulations that would allow a higher blend of ethanol to be sold year-round. [Read Full Article](#)

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## Ad Wars

by Kelsey Tamborrino (Politico's Morning Energy) The Renewable Fuels Association launched a weeklong ad campaign in Iowa on Monday, coinciding with Wheeler's visit to the state's annual fair. The ads hit EPA on the Renewable Fuel Standard and push the agency to institute year-round sales of E15 blends. The ads [Read Full Article](#)

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## EPA's RFS Study Timeline

by Kelsey Tamborrino (Politico's Morning Energy) EPA wants 14 months to finish up an air quality study of the Renewable Fuel Standard, saying in a court filing Monday that the timeline "is the most expeditious one for the agency to complete the anti-backsliding study." The study could ultimately lead to [Read Full Article](#)

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## Mr. President, Don't Support Any 'Deal' That Undermines the RFS

by Donnell Rehagen (National Biodiesel Board/Real Clear Energy) ... The ethanol industry wants EPA to remove a regulatory barrier to higher ethanol blends. In exchange, the refining industry wants to sunset the Renewable Fuel Standard. Late in July, President Trump announced in Iowa that he was "very close ... to pulling off" the ethanol industry's [Read Full Article](#)

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## Hubbell Wants More Support for Farmers Hurt by Trade War

by Rod Boshart (Sioux City Journal) Democratic gubernatorial candidate Fred Hubbell called out Gov. Kim Reynolds Saturday for not taking a more-aggressive public stance on behalf of Iowa farmers and rural interests being hurt by President Trump's trade war with China rather than "towing the party line" in the trade dispute.[Read Full Article](#)

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## Farmers Crowd in to Hear Minnesota Governor Candidates

by Don Davis (Forum News Service/Fairbault Daily News) Minnesota's five major governor candidates bent over backwards to show they are on farmers' side during the first forum with them all. ... Farmers and agri-business people were eager to hear what they had to say, with all 1,000 seats filled and another [Read Full Article](#)

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## Frustration Brews in the Ethanol Industry

by Dan Looker (Successful Farming) Lawsuits and EPA petitions are in the works. — ... "I would say the status quo right now is unacceptable for the industry," says Emily Skor, CEO of Growth Energy. "If he's (President Donald Trump) supportive of year-round E15, let's do it. Let's see it." These [Read Full Article](#)

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### Stink, Swine, and Nuisance: The North Carolina Hog Industry and Its Waste Management Woes

by Jessie Stolark (Environmental and Energy Study Institute) ... Biogas – Turning Hog Waste into Resources — Biogas technologies turn organic wastes, including manure, into energy and compost. When manure is turned into biogas, the smells, poor health effects, and methane emissions associated with hog farms are drastically reduced. At a [Read Full Article](#)

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### California Drivers Pay Growing Cost for Climate Program

by David R. Baker (San Francisco Chronicle) A California program to fight climate change may now add more to the cost of gasoline than the state gas-tax increase that many voters want to repeal. The Low Carbon Fuel Standard, designed to cut greenhouse gas emissions from fuel, now adds 12 to 14 cents per [Read Full Article](#)

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### On the Rise: The Digest's 2018 Multi-Slide Guide to Biogas, Its Markets and Production and Treatment Technologies

by Jim Lane (Biofuels Digest) What's up with biogas? The U.S. market has lagged in the development of biogas facilities because of the low cost of electricity, natural gas and vehicle fuels derived from petroleum. The passing of the Renewable Fuels Standard (RFS) in the Energy Independence and Security Act of 2007 [Read Full Article](#)

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## Oil's Relentless Price Climb Brings Advanced Biofuels Back in Vogue

by Jim Lane (Biofuels Digest) For several years now we have seen a significant number of players pivoting from biofuels towards smaller but higher-value markets in chemicals, nutrition, nutraceuticals, pharma, materials, flavorings, fragrances, cosmetics and more. We've reported on the proliferation of applications both in the Digest and in What's New? and [Read Full Article](#)

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## To Kill Climate Rule, EPA Wants to Redefine Danger of Soot

by Niina Heikkinen (E&E News) Whether it's in haze-shrouded cities, plumes of car exhaust or even clear skies, fine particle pollution can be found just about everywhere in the United States. ... Exposure to fine particles is linked to premature death and higher risks of asthma and heart attacks. After decades of [Read Full Article](#)

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## California Schemin'

by Kelsey Tamborrino (Politico's Morning Energy) The Trump administration's proposed freeze of vehicle fuel efficiency standards sought by the Obama administration and plan to end California's power to enforce its own rules has placed the spotlight squarely on the state, where its political leaders are vowing an all-out fight . California [Read Full Article](#)

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## EPA Opens Door to Conversation about High Octane Fuels

(Urban Air Initiative) After being one of the first to embrace and encourage high octane fuels as a solution for reducing emissions and improving air quality, the Urban Air Initiative is relieved to finally see octane included in the latest EPA discussion about fuel economy standards. For the CAFE/GHG standards, the Environmental Protection Agency's [Read Full Article](#)

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## Unwinding the Perverse Arithmetic of Scott Pruitt's Small Refinery Exemptions to the RFS

by Jeremy Martin (Union of Concerned Scientists/Biofuels Digest) ... Here, we untangle the opaque way (former Environmental Protection Agency Administrator Scott) Pruitt rigged the system for his fossil fuel friends and what this means for the ongoing RFS rulemaking. Pruitt pulling strings for polluters Last year Pruitt, acting on behalf of [Read Full Article](#)

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## RFA: EPA Is Working on an E15 Rule

by Kelsey Tamborrino (Politico's Morning Energy) Bob Dinneen, the outgoing CEO of the Renewable Fuels Association, told reporters Wednesday that he thinks EPA staff is working on a rule to allow year-round sales of 15 percent ethanol fuel, despite what Wheeler told Senate EPW earlier in the day. "We can [Read Full Article](#)

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## RFA Welcomes Inclusion of High Octane Fuels in 2021-2026 CAFE/GHG Proposal

(Renewable Fuels Association) The Renewable Fuels Association (RFA) today welcomed the U.S. Environmental Protection Agency's (EPA) request for public comments on how high octane fuels could facilitate engine efficiency improvements and reduced emissions under 2021-2026 fuel economy and tailpipe GHG standards for light-duty automobiles (CAFE/GHG). The solicitation for comments on high [Read Full Article](#)

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## Trump Administration to Freeze Fuel Efficiency Requirements

by Brady Dennis, Michael Laris and Juliet Eilperin (The Washington Post) The Trump administration on Thursday announced plans to freeze fuel efficiency requirements for the nation's cars and trucks through 2026 — a massive regulatory

rollback likely to spur a legal battle with California and other states, as well as create potential upheaval in the [Read Full Article](#)

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### Bioenergy (Biofuels/Biomass) RFS Roundup: To Grow Cellulosic Fuel Volumes, Address Low Hanging Fruit in RFS Changes

by Jessie Stolark (Energy and Environmental Study Institute) On Wednesday July 25, the House Energy & Commerce Committee held a hearing to educate members on the complexities of the compliance markets for biofuels, as Environment and Economy Subcommittee Rep. Shimkus (R-IL), chair, explores reforming the Renewable Fuel Standard (RFS). Shimkus (R-IL) [Read Full Article](#)

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### Daily on Energy: Democrats 'Pleased' to Hear from Trump's New EPA Pick: EPA'S Wheeler Promises '50-State Solution' for New Auto Rules

by John Siciliano (Washington Examiner) Environmental Protection Agency Administrator Andrew Wheeler confirmed to senators Wednesday that the Trump administration this week will release a proposal to weaken Obama-era fuel efficiency standards. Wheeler, in his first testimony before Congress since replacing Scott Pruitt, said he hopes to come up with a "50-state [Read Full Article](#)

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### Time for EPA to Clean up the Mess It Made of the RFS

by Timothy J. Rudnicki (Minnesota Bio-Fuels Association) ... Let's be clear here. There are legitimate complaints from the biofuel industry because (acting Environmental Protection Agency Administrator Andrew) Wheeler's predecessor turned over the agency to Big Oil. How else can you explain the 2.25 billion gallons of ethanol that were lost via [Read Full Article](#)

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### USDA Provides Aid for Farmers, Biofuel Groups Call for RVP Relief

by Erin Voegele (Ethanol Producer Magazine) The USDA has announced it will authorize up to \$12 billion in aid to assist farmers who have been impacted by retaliatory tariffs on U.S. agricultural goods. The ethanol industry also called on the Trump administration to provide Reid vapor pressure (RVP) relief for E15 [Read Full Article](#)

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### House Subcommittee Holds Hearing on RINs

by Erin Voegele (Ethanol Producer Magazine) On July 25, the U.S. House Committee on Energy and Commerce's Subcommittee on Environment held a hearing that aimed to educate members of the subcommittee on renewable identification numbers (RINs) and the role RINs play in the Renewable Fuel Standard. In his opening statement, Subcommittee [Read Full Article](#)

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### Trump Says Very Close to 12-Month Waiver for Ethanol in Gasoline

by Roberta Rampton and Lisa Lambert (Reuters) President Donald Trump on Thursday said his administration is very close to granting a waiver that would allow the sale of gasoline containing 15 percent ethanol year-round. "I'm very close, I have to tell you, to pulling off something you have been looking forward to [Read Full Article](#)

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### Higher Blends of Ethanol Should Be Available Year-Round

by Anthony Bush (Marion Star) ... Most urgently, (Agriculture) Secretary (Sonny) Perdue must follow the president's directive to work with the Environmental Protection Agency to end harmful sales regulations on higher ethanol blends like E15 and above. These regulations restrict the sale of higher blends during the summer months when travel [Read Full Article](#)

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## Inside the Draft Auto Rule Rollback

by Alex Guillén (Politico's Morning Energy) The Trump administration is expected to formally roll back vehicle fuel economy and emissions requirements later this week, and a draft version of the EPA-NHTSA rule posted Friday evening by The New York Times offers up details that confirm the many of the changes previously [Read Full Article](#)

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## Extra Administration Analysis Delays Fuel Economy Rules

by Kelsey Tamborrino (Politico's Morning Energy) Fuel economy rules from EPA and the Department of Transportation that were widely expected this week will be delayed, as the feds are adding analysis to give them better odds of surviving an inevitable court challenge, sources familiar with the discussions told ME. The [Read Full Article](#)

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## EPA Hasn't Told the Whole Story of the Benefits of Biofuels

by Byron Dorgan (Arent Fox LLP/National Biodiesel Board/The Hill) ... A recent Environmental Protection Agency (EPA) report released to Congress on the environmental and resource conservation impacts of biofuel production deliberately misses the mark because of what it excludes. The EPA authors note that their report excludes any consideration of biofuels' reductions of greenhouse [Read Full Article](#)

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## Fischer Joins Acting EPA Administrator to Announce Approved Fuel Pathway for Sorghum Oil

(Office of Senator Deb Fischer (R-NE)) U.S. Senator Deb Fischer, a member of the Senate Agriculture Committee, issued the following statement today after participating in an event at the Environmental Protection Agency (EPA) to

announce an approved fuel pathway for grain sorghum under the Renewable Fuel Standard (RFS): "More and more [Read Full Article](#)

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### EPA Issues Notice of Data Availability on Grain Sorghum

(National Sorghum Producers) On May 25, the U.S. Environmental Protection Agency (EPA) issued a notice of data availability (NODA) concerning renewable fuels produced from grain sorghum under the RFS program. EPA's analysis shows grain sorghum, when used to make ethanol at facilities that use natural gas, has a greenhouse gas [Read Full Article](#)

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### With Friends Like This... ... EPA's Proposed Renewable Enhancement and Growth Support Rule

by Doug Sombke (Ethanol Producer Magazine/South Dakota Farmers Union) South Dakota Farmers Union President Doug Sombke discusses how the EPA's proposed Renewable Enhancement and Growth Support rule would hurt both the ethanol and agriculture industries — ... There is no precedent for the anti-ethanol, pro-oil actions of a federal agency like we are [Read Full Article](#)

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### Ethanol Industry, Aurora Co-Op Continue to Expand in Nebraska

by Robert Pore (Kearney Hub) ... Aurora Cooperative is opening its new A-Stop 24 pump site just north of Grant on Highway 61. Friday's ceremony was attended by Gov. Pete Ricketts, area chamber members and Nebraska corn and ethanol board representatives. The A-Stop 24 will provide E10, E15, E30 and E85 [Read Full Article](#)

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### Sen. Ernst Questions CEQ Nominee on RFS and Year-Round E15

by AJ Taylor (KLOW) Senator Joni Ernst (R-IA) stressed the importance of biofuels to rural communities and the need to uphold the Renewable Fuel Standard (RFS)



during a Senate Environment and Public Works Committee hearing on the nomination of Mary Bridget Neumayr to be a Member of the Council on Environmental Quality [Read Full Article](#)

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## When Does Environmental Regulation Stimulate Technological Innovation?

by David M. Hart (Information Technology and Innovation Foundation) There's no magic bullet to ensure firms will respond to environmental regulation by innovating. But a literature review shows certain conditions that will raise that likelihood, pointing the way to some important rules of thumb for policymakers. ... My review of a [Read Full Article](#)

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## House Energy Committee Hearing on Renewable Fuel Standard RINs — July 25, 2018 — Washington, DC

9:15 a.m. 2322 Rayburn House Office Building. Washington, DC 20515 — The House Energy & Commerce Committee's Subcommittee on Environment will hold a hearing entitled "Background on Renewable Identification Numbers under the Renewable Fuel Standard." The hearing webcast will be available at <http://energycommerce.house.gov/>.  
<https://energycommerce.house.gov/hearings/background-on-renewable-identification-numbers-under-the-renewable-fuel-standard> READ MORE ON TAP  
THIS WEEK: (Politico's Morning Energy) [Read Full Article](#)

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## Help Or Hinder? Federal Agencies At Odds Over Biofuels

by Madelyn Beck (Harvest Public Media/KUNC) ... That's because for the last few years, the EPA and the Department of Energy have been at odds, with taxpayer money creating a new biofuel industry that may not have the room to grow outside the lab. ... The Department of Energy spent hundreds [Read Full Article](#)

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## Report: Clean Car Rules Coming Soon

by Kelsey Tamborrino (Politico's Morning Energy) Mark your calendars, readers. An EPA official told E&E News that the Trump administration will propose its plans for weakening Obama-era clean car standards next week. The plan will provide several options for public comment, but will stop short of revoking states' ability to set [Read Full Article](#)

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## Low-Carbon Jet Fuel and Diesel, at Scale: The Digest 2018 Multi-Slide Guide to AltAir Fuels

by Jim Lane (Biofuels Digest) Established in 2013, AltAir Fuels was created to produce low carbon fuels and chemicals derived from sustainable feedstock. For its first commercial project, AltAir partnered with Alon Energy USA to use its existing refinery in Paramount, California retooling idled refining equipment to increase the nation's energy [Read Full Article](#)

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## Did Trump's Renewable Fuels Policy Really Cost Corn Growers \$3.65 Billion in 2017?

by Jim Lane (Biofuels Digest) In Washington, new evidence has appeared that a Trump Administration shift on US low carbon fuel policy may have cost US corn growers an estimated \$3.65 billion. The mechanism? A secretive effort by Administration officials installed at the US Environmental Protection Agency that destroyed an estimated [Read Full Article](#)

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## Heard on the Floor at the BIO World Congress: Dinneen Steps Down at RFA, Cooper Succeeds; EPA Hearings in DC; Organic Solar Cells; Lygos rockin'; Biomaterials Advance; Iffy News for Algae Tech.

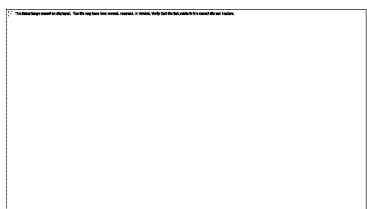
by Jim Lane (Biofuels Digest) ... News spread like wildfire at the 2018 BIO World Congress in Philadelphia that Renewable Fuels Association CEO Bob Dinneen will transition into the role of RFA's Senior Strategic Advisor, and Executive Vice

President Geoff Cooper will assume the position of President and CEO in October [Read Full Article](#)

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## Latest in Federal Litigation



Litigation concerns complaints about **waivers** from **RINs** obligations granted to oil refineries and from **California** in response to the **White House CAFE** standards review. A fraud case comes out of Colorado.

Federal litigation news overlaps with Federal regulation or legislation items, so check all sections.

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### EPA's RFS Study Timeline

by Kelsey Tamborrino (Politico's Morning Energy) EPA wants 14 months to finish up an air quality study of the Renewable Fuel Standard, saying in a court filing Monday that the timeline "is the most expeditious one for the agency to complete the anti-backsliding study." The study could ultimately lead to [Read Full Article](#)

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### Colorado Business Owner Pleads Guilty to \$7 Million Biodiesel Tax Credit Fraud Scheme

(U.S. Department of Justice) A Colorado business owner pleaded guilty today to conspiracy to impair and impede the Internal Revenue Service (IRS) for his role in a \$7.2 million renewable fuel tax credit scheme, announced Principal Deputy

Assistant Attorney General Richard E. Zuckerman of the Justice Department's Tax Division. According to [Read Full Article](#)

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### NBB Files Opening Brief Challenging 2018 Renewable Fuel Standards

(National Biodiesel Board) NBB brief is the first to challenge EPA's accounting for small refinery "hardship" exemptions in the annual RFS volumes — On Friday July 27, 2018, the National Biodiesel Board filed an opening brief in its lawsuit objecting to EPA's methodology for establishing the 2018 Renewable Fuel Standards (RFS). NBB [Read Full Article](#)

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### Court to Hear RFS Refinery Waivers Case

by Todd Neeley (DTN The Progressive Farmer) Appeals Court to Hear Whether EPA Followed Law Prior to Granting Exemptions — The 10th Circuit Court of Appeals in Denver will hear a Renewable Fuels Standard lawsuit challenging EPA's issuance of small refinery waivers, after the court ruled on Friday it is the proper [Read Full Article](#)

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### Judge Throws out New York City's Climate Change Lawsuit against 5 Major Oil Companies

by Tom DiChristopher (CNBC) A federal judge dismissed New York's lawsuit against five big oil and gas companies for their role in climate change. New York argued the companies should compensate the city for the cost of mitigating the effects of global warming. U.S. District Court Judge John F. Keenan ruled that problems associated [Read Full Article](#)

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### U.S. Court of Appeals Rules in Ergon – West Virginia's Favor in RFS Claim Against EPA

(Ergon – West Virginia, Inc./Business Wire) Ergon – West Virginia, Inc., Wrongfully Denied Small Refinery Hardship Relief — The United States Court of Appeals for the 4th Circuit has vacated and remanded the United States Environmental Protection Agency's (EPA) denial of a 2016 petition for small refinery hardship filed by [Read Full Article](#)

## Advanced Biofuels USA News

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644-1395 or send an email to [info@AdvancedBiofuelsUSA.org](mailto:info@AdvancedBiofuelsUSA.org) and I'll get you more information.

Thanks,

Joanne Ivancic, Executive Director

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Message

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on behalf of Joanne Ivancic Advanced Biofuels USA [info@advancedbiofuelsusa.org]  
**Sent:** 7/17/2018 8:55:52 PM  
**To:** Argyropoulos, Paul [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=0149b93d2780437a9c2b6d8477df7991-pargyrop]  
**Subject:** Policy, Regulations, Legislation, Litigation, Open for Public Comment -- July 2018 from Advanced Biofuels USA

Dear Paul: Federal Legislation, Regulation, Litigation. Policy. Requests for Comment on Federal Regulations. At your fingertips.

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## Open for Public Comment

[Request for Nominations of Candidates to the EPA's Science Advisory Board \(SAB\) and SAB Standing Committees DEADLINE: August 8, 2018](#)

July 17, 2018 – (Environmental Protection Agency/Federal Register) The U.S. Environmental Protection Agency (EPA) invites nominations of scientific experts from a diverse range of disciplines to be considered for appointment to the EPA Science Advisory Board (SAB) and four SAB ...



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[EPA Schedules Hearing on Proposed RFS Rule for July 18 COMMENT](#)

[DEADLINE August 17, 2018](#)

July 3, 2018 – by Erin Voegelé (Ethanol Producer Magazine) The U.S. EPA has announced it will hold a public hearing in Ypsilanti, Michigan, July 18 to gather public input on its proposed rule to set 2019 renewable volume obligations ...

---

[EPA Releases Proposed 2019 RFS RVOs, Fails to Address Waivers COMMENT](#)

[DEADLINE: August 17, 2018](#)

June 26, 2018 – by Erin Voegelé (Ethanol Producer Magazine) On June 26, the U.S. EPA released a proposed rule that aims to require 19.88 billion gallons of biofuels to be blended into the U.S. fuel supply in 2019, up ...

---

[Pruitt Unveils Controversial 'Transparency' Rule Limiting What Research EPA Can Use](#)

[COMMENT DEADLINE extended to August 16, 2018](#)

April 25, 2018 – by Juliet Eilperin and Brady Dennis (The Washington Post) Environmental Protection Agency Administrator Scott Pruitt moved Tuesday to limit what science can be used in writing agency regulations, a change long sought by conservatives.

The proposed rule would ...

[MORE OPEN PUBLIC COMMENT REQUESTS](#)

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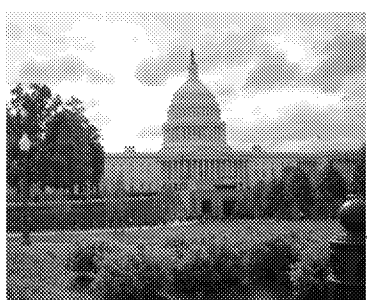
## **2018 US Senate and House Elections**

Biofuels should be an issue during this year's US Senate and House of Representatives elections. We'll follow developments [here](#) and on our [website](#) with category, [2018 Election Activities](#)



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## Latest Federal Legislation Posts



**CJ Evans** has written the prequel to "How a Bill Becomes a Law" with what might be called "**How an Idea Becomes a Bill.**" With lists of not just lobbying do's and don't's; but also including the story of the hard work and foundation-building that goes into the **legislative process**. How can constituents help

legislators have a clue about what's going on? How can we help them make informed, reasoned choices?

**The Farm Bill**, particularly the **Energy Title**, biodiesel **tax credits**, and **carbon tax** ideas. round out the hot legislative topics of the month.

For more legislative news (including Executive Orders), [click here](#).

We also follow [policy developments](#) in the US, other countries and states. For more information on those topics, click on the name of the country or state that appears along the right margin of the website.

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### [How to Win the Public Policy Debate, and the Annual Government Agency Funding Battles for the Bioeconomy](#)

July 16, 2018 – by Craig (CJ) Evans (American Diversified Energy Consulting Services/Lee Enterprises Consulting/Biofuels Digest) More than almost any other industry, financing for the bioeconomy is heavily influenced by and, in many cases, reliant on favorable public policies. Everyone involved in ...

---

### On Tap This Week: The Rules Committee

July 16, 2018 – by Kelsey Tamborrino (Politico's Morning Energy) The Rules Committee will meet Tuesday to consider a resolution, H. Con. Res. 119 (115), that calls a carbon tax “detrimental” to the U.S. economy and “not in the ...

---

### Letter from Byzantium: Answers to Your Questions about Byzantine Biofuels Budgets and Policy Moves

July 3, 2018 – by Jim Lane (Biofuels Digest) ... Yes, Virginia, there is cant, pettifoggery, self-dealing, obfuscation, and downright dirty pool when it comes to the deployment of biofuels, chemicals and advanced biomaterials — but there are also some ...

---

### Senate Overwhelmingly Passes Sweeping Farm Bill, Setting up Fight with House

June 29, 2018 – by Caitlin Dewey and Erica Werner (Washington Post) The Senate passed its version of the \$428 billion farm bill Thursday, setting up a bitter fight against the House over food stamps, farm subsidies and conservation funding. The ...

---

### West Fargo Farm Rally Will Try to Capture Part of Trump's Spotlight

June 27, 2018 – by Patrick Springer (West Fargo Pioneer) ... “It’s not a protest against President Trump,” said Pam Musland, marketing and communication supervisor for the North Dakota Farmers Union. “Our hope is to grab some media attention with ...

---

### Producers, Marketers Unify in Support of Biodiesel Tax Credit

June 26, 2018 – (National Biodiesel Board) Today (June 25, 2018), a diverse group of trade associations delivered a letter to Congressional leaders announcing a unified position to maintain and extend the current biodiesel blenders tax credit. In a letter to House ...

---

### Advanced Biofuels under the Renewable Fuel Standard: Current Status and Future Prospects

June 22, 2018 – (U.S. House of Representatives Committee on Energy and

Commerce Subcommittee on Environment) ... A number of exogenous policies have greatly impacted advanced biofuels markets and RFS (Renewable Fuel Standards) compliance. These include trade restrictions and duties ...

---

#### UPDATE 2-EPA to Propose Reallocating Waived Biofuels Volumes to Other Refiners-Sources

June 21, 2018 – by Jarrett Renshaw and Chris Prentice (Reuters/Successful Farming) The U.S. Environmental

Protection Agency will propose reallocating biofuel blending obligations waived under its small refinery exemption program to other refiners, in an announcement that could come as early as Friday, according to ...

---

#### Oxy Considering Carbon Capture Project

June 20, 2018 – by James Osborne (Houston Chronicle) The Houston oil company Occidental Petroleum is studying a carbon capture project to deliver carbon dioxide to its oil fields in West Texas, the company announced Tuesday.

Engineers are expected to spend ...

---

#### New Conservative Group Lobbies for Carbon Tax

June 20, 2018 – by Kelsey Tamborrino (Politico's Morning Energy) A new group with a conservative backing has formed to push for a carbon tax. The Americans for Carbon Dividends is co-chaired by two former senators: John Breaux and ...

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#### Midwest Trump Voters Losing Faith in His Commitment to Biofuels

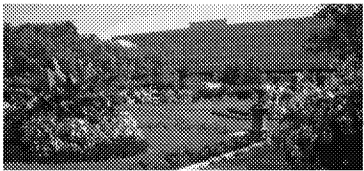
June 18, 2018 – (National Biodiesel Board/Biodiesel Magazine) New polling shows that voters across three Midwestern states are disappointed with Trump administration decisions they view as broken promises of support for local agriculture and renewable fuels industries.

In a survey of ...

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## Latest on Federal Regulation



It's Musical Chairs time in Washington, DC. With EPA's Scott Pruitt out and a new Supreme Court justice in the wings. And what will that mean for biofuels?

The "small refinery" waivers, CAFE (Corporate Average Fuel Economy) mid-term review issues and challenges to California's authority to set vehicle pollution control standards remain in the spotlight. And the E15 RVP waiver remains unresolved.

Scroll down for details, for information about regulations related to these topics and others.

---

### California Is Cutting Greenhouse Gases, but Not from Cars. Can That Change?

July 17, 2018 — by David R. Baker (San Francisco Chronicle) ... Emissions from transportation — cars, trucks, trains, planes and ships — keep rising. And since transportation accounts for more greenhouse gas emissions than any other sector, that must ...

---

### Prior to Take-off: The Digest's 2018 Multi-Slide Guide to Renewable Jet Fuels and Certification

July 17, 2018 — by Jim Lane (Biofuels Digest) Before renewable jet fuel production comes renewable jet fuel certification. What is involved? FAA and CAAFI stalwart Mark Rumizen presented on the process, the steps, the milestones and more at ABLC 2018 ...

---

### A Plan to Reallocate Waived Biofuels

July 16, 2018 — (Red River Farm Network) The ethanol industry will continue to

pursue a fix for the damages brought on from EPA's issuing of small refinery waivers. Ahead of a public hearing Wednesday, Renewable Fuels Association Executive ...

---

#### Grassley Not Happy with EPA RFS Reply

July 16, 2018 – (The Hagstrom Report/The Fence Post) The Environmental Protection Agency finally replied to a letter that Sen. Chuck Grassley, R-Iowa, Sen. Amy Klobuchar, D-Minn., and 11 other senators sent in April inquiring about waivers to the Renewable ...

---

#### Minnesota Bio-Fuels Association Releases 2018 Half Year Report

July 12, 2018 – (Minnesota Bio-Fuels Association) The Minnesota Bio-Fuels Association (MN Biofuels) released its 2018 Half Year Report to its producer and vendor members at a networking event in Prior Lake yesterday.

The report gave members an overview of Minnesota's ...

---

#### EPA Scraps Detailed Plan to Force U.S. Refiners to Blend More Biofuels

July 12, 2018 – by Jarrett Renshaw (Reuters) The U.S. Environmental Protection Agency ditched a detailed plan that would have forced refiners to blend more biofuels into their gasoline and diesel in 2019 to compensate for volumes likely to be ...

---

#### Growth Energy: American Drivers Pass 5 Billion Miles on E15

July 11, 2018 – (Growth Energy) Growth Energy announced today that American drivers have logged 5 billion miles on E15. The latest milestone was reached in the midst of Reid Vapor Pressure (RVP) restrictions on the sale E15 fuel across ...

---

#### California Regulator Sees 'Window' for Deal on Fuel Economy Rules

July 10, 2018 – by David Shepardson (Reuters) California is ready to work with major automakers on revisions to greenhouse gas emission vehicle rules through 2025 and sees a "window" for a deal in the coming months, the state's top ...

---

### The 'Octane Olive Branch' Is Full of Thorns

July 9, 2018 –by Doug Durante (The Hill/Clean Fuels Development Coalition) With a final rule on fuel economy likely to come out in the near future, a considerable amount of attention has centered on higher octane fuels as a ...

---

### Pruitt Departure Allows for 'Reset' between Trump and Ethanol

July 9, 2018 – by Mario Parker (Bloomberg) ... The EPA also jettisoned a plan to incorporate an additional 1.5 billion gallons of biofuel requirements in last week's proposal to make up for the potential waivers granted to small refineries. ...

---

### Creative Debt and Equity: The Digest's 2018 Multi-Slide Guide to Structures for Bioeconomy Project Finance

July 9, 2018 –by Jim Lane (Biofuels Digest) Bottom line, if you're in the business of financing a renewable fuels project with a loan guarantee in the mix, you're probably talking with some combination of New Energy Risk, Stern ...

---

### In a Q&A with The Washington Post on Friday, Wheeler Showed He Differs from Pruitt

July 9, 2018 – by Kelsey Tamborrino (Politico's Morning Energy) In a Q&A with The Washington Post on Friday, (EPA Acting Administrator Scott) Wheeler showed he differs from Pruitt in at least one major way. He said he considers an endangerment ...

---

### Scott Pruitt Steps down as EPA Head after Ethics, Management Scandals

July 5, 2018 – by Brady Dennis and Juliet Eilperin (Washington Post) Scott Pruitt, the former Oklahoma attorney general who relentlessly pursued President Trump's promises of deregulation at the Environmental Protection Agency, resigned Thursday after controversies over his lavish spending, ethical ...

---

### Ethanol Helps Fourth of July Travelers Declare Independence from High Gas Prices

July 3, 2018 – by Rachel Gantz (Renewable Fuels Association) A record number of travelers will take to America's highways and byways this Fourth of July holiday, and ethanol will be lowering the price they pay for gasoline while ...

---

### Lawmakers Ask EPA to Approve RFS Pathway for Biomass Power

June 29, 2018 – by Erin Voegelé (Ethanol Producer Magazine) A bipartisan delegation of California lawmakers are urging the U.S. EPA to resolve any issues that prevent biomass and waste-to-energy pathways from receiving the same level of support as other ...

---

### RFA Chief Knocks EPA Over Failure to Address Illegal Cut in 2016 RVO

June 28, 2018 –by Jeff Barber (Opisnet) PA's failure to include in its proposed 2019 Renewable Volume Obligation (RVO) an estimated 500 million gal of renewable fuels that a federal appeals court last year said the agency illegally excluded ...

---

### Grassley Statement on EPA's Proposed 2019 RFS Biofuels Levels

June 28, 2018 – (Office of Senator Chuck Grassley (R-IA)) ... “As chairman of the Senate Judiciary Committee, I also have concerns that EPA may be ignoring or abusing the Administrative Procedure Act as they continue to grant waivers in ...

---

### ‘To-mah-toe, To-may-toe...’: Consequences of Valorizing Biobased Carbon over Biobased Matter

June 28, 2018 – by Michael A. Fatigati (Biofuels Digest) ... We now find it necessary to throttle back our drawdown of the fossil carbon account to preserve our climate and through reasoned and sensible policies and regulation moving us towards ...

---

### Octane Overconfidence

June 27, 2018 – by Ron Lamberty (American Coalition for Ethanol/Ethanol Producer Magazine) ... (W)hy oil refiners wouldn't use ethanol as a source of octane, under a high-octane fuel standard, without an RFS or RINs. — ... Ethanol is ...

---

### Zero to 10 Million in 5 years

June 27, 2018 – by Susanne Retka Schill (Ethanol Producer Magazine) Slow to start and with fewer gallons than targeted through the Renewable Fuel Standard,



cellulosic ethanol is showing signs of steady growth. — Cellulosic ethanol production has been gaining momentum ...

---

#### EPA Confirms 33 Small Refinery Waiver Applications

June 27, 2018 – (Argus Media) The Environmental Protection Agency (EPA) was considering applications to waive 2017 federal fuel blending requirements from 33 refiners this month, up from the 29 it confirmed in April, the agency said today (June 26, ...

---

#### Ethanol, Not Oil, Should Be Focus of EPA

June 26, 2018 – by Dale Christensen (Argus Leader) The new EPA Director, E. Scott Pruitt is reworking the EPA. It appears their new mission is to rewrite all the rules to benefit the Oil Industry! The old rule of order ...

---

#### Ethanol Provides Value to Everyone in the Chain

June 26, 2018 – by John Duff (Delta Farm Press) ... Regardless of policy, ethanol presents a value proposition to all involved. Ethanol gives farmers access to more markets and greater global market liquidity. In a world where 74% of ...

---

#### EXCLUSIVE-Trump's EPA Ignored Energy Department Calls to Limit Biofuel Waivers

June 26, 2018 – by Jarrett Renshaw and Chris Prentice (Reuters) The Trump administration's Environmental Protection Agency has consistently ignored recommendations from the Department of Energy to reject or limit waivers to oil refiners seeking exemptions from nation's biofuels law, according ...

---

#### BoatUS Conducting Ethanol, Summertime Refueling Survey

June 26, 2018 – (Boating Industry/Boating Owners Association of The United States) With the start of the boating season, Boat Owners Association of The United States (BoatUS) wants to hear from boaters about their experiences with ethanol fuels in an ...

---

#### Barrasso Statement on Forthcoming Biofuel Mandate for 2019

June 26, 2018 – (Office of Senator John Barrasso (R-WY)) U.S. Senator John

Barrasso (R-WY), chairman of the Senate Committee on Environment and Public Works (EPW), issued the following statement on the forthcoming biofuel mandate for 2019.

"I will carefully examine EPA's ...

---

#### Ethanol Discussion Needs to Be Based on Facts

June 25, 2018 – by David Kessel (Marin Independent Journal) ... Discussions on energy use and production are important, but need to be based on factual information, not made up red herrings.

- The articles state the intent was to ...

---

#### Drain the Swamp: Fire Pruitt at EPA

June 25, 2018 – (The Courier) ... Yet (Iowa Senator Joni) Ernst's recent attack against Pruitt at a Washington energy forum was triggered over Pruitt's "lies" about the Renewable Fuel Standard: not expanding year-round sales for the 15 percent ...

---

#### The White House Continues to Drive The Outlook for Biofuels Producers

June 22, 2018 – by Tristan R. Brown (Seeking Alpha) Three major policy developments by the White House have had a large impact on U.S. biofuel producers over the past week.

The EPA was initially reported to be on the verge ...

---

#### House Members Demand Answers from EPA on RFS, Waivers

June 22, 2018 – by Erin Voegele (Ethanol Producer Magazine) On June 20, 12 democratic members of the House Energy and Commerce Committee and House Committee on Agriculture asked the U.S. EPA to provide additional information regarding its failed implementation ...

---

#### EPA to Propose 19.88 bln Gallon Biofuels Mandate, up 3 pct – Sources

June 22, 2018 –by Jarrett Renshaw (Reuters) The U.S. Environmental Protection Agency will propose setting a 19.88-billion-gallon biofuels blending mandate in 2019 under the Renewable Fuel Standard, up about 3 percent from 2018, according to two sources briefed on ...

---

#### Advanced Biofuels under the Renewable Fuel Standard: Current Status and Future Prospects

June 22, 2018 – (U.S. House of Representatives Committee on Energy and Commerce Subcommittee on Environment) ... A number of exogenous policies have greatly impacted advanced biofuels markets and RFS (Renewable Fuel Standards) compliance. These include trade restrictions and duties ...

---

#### EPA Considers Delaying Friday Biofuel Announcement: Sources

June 22, 2018 – by Jarrett Renshaw and Chris Prentice (Reuters) The U.S. Environmental Protection Agency (EPA) is considering delaying its widely anticipated announcement on Friday on 2019 renewable fuel volumes as it re-examines plans to force larger refineries to ...

---

#### Growth Energy: Prime the Pump Success Driving Ethanol Demand

June 21, 2018 – (Growth Energy) More than 2,800 retail sites will offer E15 by 2021, generating approximately 350 million new ethanol gallons annually, according to a one-pager released today by Growth Energy. The report touts the immense success of ...

---

#### UPDATE 2-EPA to Propose Reallocating Waived Biofuels Volumes to Other Refiners-Sources

June 21, 2018 – by Jarrett Renshaw and Chris Prentice (Reuters/Successful Farming) The U.S. Environmental

Protection Agency will propose reallocating biofuel blending obligations waived under its small refinery exemption program to other refiners, in an announcement that could come as early as Friday, according to ...

---

### Ethanol Industry Goes Global as Gasoline Price Rally Deteriorates Demand

June 20, 2018 –by Suzanne Danforth and Jim Venhof (Genscape) U.S. domestic ethanol demand suffered this spring relative to 2017, despite consistently favorable blending values and increasing Renewable Fuel Standard (RFS) requirements. The decline, following a period of historically low ...

---

## **Latest in Federal Litigation**



New Supreme Court justice nominee articles join policy-related litigation filed with complaints about waivers from RINs obligations granted to oil refineries and from California in response to the **White House CAFE** standards review. A fraud case comes out of Colorado.

Federal litigation news overlaps with Federal regulation or legislation items, so check all sections.

---

### Trump Admin Moves to Throw out RFS Waivers Suit

July 17, 2018 – by Amanda Reilly (E&E News) The Trump administration on Friday asked a federal court to throw out a lawsuit over EPA's decision to exempt refiners from annual renewable fuel requirements. Government lawyers raised procedural arguments against ...

---

### California Regulator Sees 'Window' for Deal on Fuel Economy Rules

July 10, 2018 – by David Shepardson (Reuters) California is ready to work with major automakers on revisions to greenhouse gas emission vehicle rules through 2025 and sees a "window" for a deal in the coming months, the state's top ...

---

### Brett Kavanaugh Could Be Good for Ethanol

July 10, 2018 – by John Siciliano (Washington Examiner) President

Trump's nomination of Judge Brett Kavanaugh to the Supreme Court could be good news for the ethanol industry and clean energy programs where adherence to the law is often challenged.

Trump said Kavanaugh, ...

---

### Justice Kennedy's Retirement Could Reshape the Environment

June 29, 2018 – by Robinson Meyer (The Atlantic) A new justice will likely weaken the Clean Air Act, Clean Water Act, and Endangered Species Act. — ... With Kennedy gone, a more conservative Supreme Court could overhaul key aspects of ...

---

### RFA Chief Knocks EPA Over Failure to Address Illegal Cut in 2016 RVO

June 28, 2018 – by Jeff Barber (Opisnet) PA's failure to include in its proposed 2019 Renewable Volume Obligation (RVO) an estimated 500 million gal of renewable fuels that a federal appeals court last year said the agency illegally excluded ...

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### Colorado Business Owners Indicted For \$7 Million Biodiesel Tax Credit Fraud Scheme

June 21, 2018 –(U.S. Department of Justice) A federal grand jury for the District of Colorado has returned an indictment, which was unsealed today, charging two Colorado business owners with conspiring to defraud the United States and to commit ...

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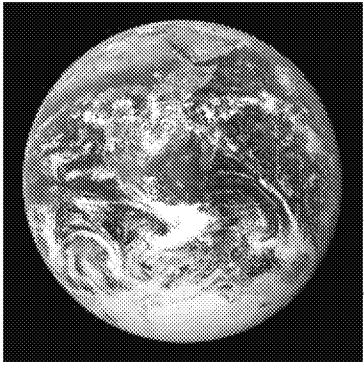
Thanks,

Joanne Ivancic, Executive Director

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# United States Senate

COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS

WASHINGTON, DC 20510-6175

RICHARD M. RUSSELL, MAJORITY STAFF DIRECTOR  
GABRIELLE BATYEN, MINORITY STAFF DIRECTOR

March 5, 2018

The Honorable E. Scott Pruitt  
Administrator  
Environmental Protection Agency  
1200 Pennsylvania Ave., NW  
Washington, D.C. 20460

The Honorable Rick Perry  
Secretary  
Department of Energy  
1000 Independence Ave., SW  
Washington, D.C. 20585

Dear Administrator Pruitt and Secretary Perry:

We write to reaffirm our strong support for your leadership in providing, as Congress intended, relief to small refineries suffering hardship under the Renewable Fuel Standard (RFS). Hardship relief is critical to the commercial viability and survival of small refineries – and the thousands of jobs that they provide – in our home states and across the country. We are deeply troubled by the recent attacks on hardship relief for small refineries and what seem to be the efforts of some opponents to obtain confidential business information about these entities. We urge you, in the strongest terms, to ensure that your staff and contractors do not disclose to any outside parties the confidential and other sensitive information of small refineries that petition for hardship relief.

Under the RFS, a small refinery may petition the Environmental Protection Agency (EPA) for relief from its annual renewable fuel volume obligations (RVOs) based on “disproportionate economic hardship.” When evaluating a petition, EPA consults with the Department of Energy (DOE), which uses detailed scoring metrics to determine whether a small refinery would suffer disproportionate economic hardship. Generally, a small refinery must experience a high cost of compliance relative to the industry average or an effect sufficient to cause a significant impairment of the refinery’s viability. To show this, a small refinery must submit confidential and other sensitive information about its financial status, compliance status, and market position, the disclosure of which would compound the harm that the RFS already causes to the refinery.

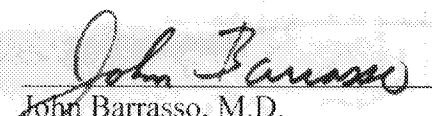
In January, we were alarmed that *Reuters* reported the number of small refineries currently petitioning for hardship relief. While we understand that EPA and DOE consider the identity of these small refineries to be confidential business information, we are concerned that opponents may be trying to obtain this and other highly sensitive information through other means, such as federal securities laws, Freedom of Information Act requests, and contacts with government officials involved in this process. Many of these opponents compete with small refineries by, for example, selling refined products in the same market or renewable identification numbers to small refineries. If opponents obtain this information, they would be able to extract even greater profits from or at the expense of small refineries. EPA and DOE must not let that happen.

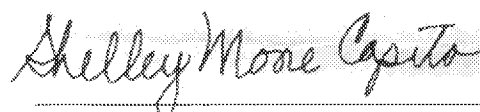
Under the RFS, EPA’s responsibility is not to maximize the amount of corn ethanol used as transportation fuel. Nor is it to enhance the competitive position of large refiners and others who profit from the RFS. Rather, EPA’s responsibility is to apply the law, which requires the

Administrator, in consultation with the Secretary, to provide relief to any small refinery that would suffer disproportionate economic hardship from the RFS. We ask you to continue to fulfill this responsibility and do so in a timely manner. We make this request regardless of whether EPA continues its long-standing practice – which we strongly support – of *not* allocating the annual RVOs of small refineries to other refineries when providing relief after setting the RVOs.

Thank you for your consideration and we look forward to your prompt response.

Sincerely,

  
John Barrasso, M.D.  
Chairman

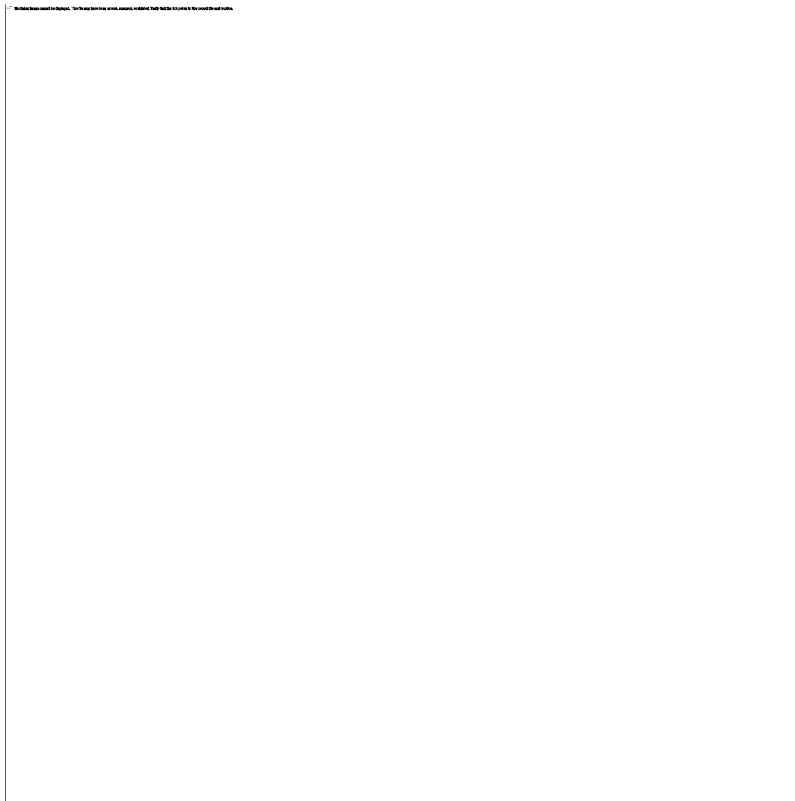
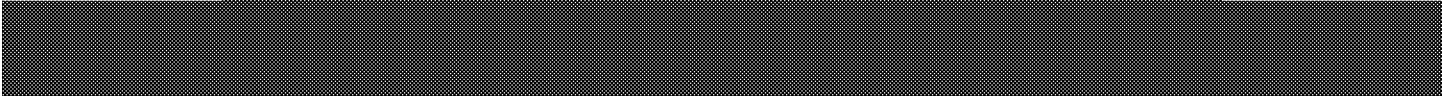
  
Shelley Moore Capito  
Chair  
U.S. Senate Subcommittee on  
Clean Air and Nuclear Safety

## Message

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**From:** Morning Consult [reply@e.morningconsult.com]  
**Sent:** 5/23/2018 12:44:13 PM  
**To:** Argyropoulos, Paul [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=0149b93d2780437a9c2b6d8477df7991-pargyrop]  
**Subject:** Morning Consult Energy: New Jersey Governor Reportedly Intends to Sign Bill Bailing Out Nuclear Plants

Morning Consult Energy: New Jersey Governor Reportedly Intends to Sign Bill Bailing Out Nuclear Plants



By Jacqueline Toth

## Top Stories

- New Jersey Gov. Phil Murphy (D) intends to sign legislation today that would aim to prop up Exelon Corp. and Public Service Enterprise Group Inc.'s struggling nuclear power plants in the state, according to a person familiar with the matter, though Murphy has not publicly voiced his support for the bill. The measure, approved by the New Jersey Legislature in April, would

require ratepayers to spend over \$300 million a year to keep the state's three nuclear plants operating, and it will be signed alongside other legislation promoting wind and solar energy, according to the source. ( [Bloomberg](#) )

- Ohio-based Marathon Petroleum Corp. asked the EPA for an exemption from fuel blending requirements for small refiners under the Renewable Fuel Standard for one of its facilities for the 2017 calendar year, according to two sources, who did not specify which facility or whether the company received the requested waiver. Marathon is currently United States' second-largest refining company and has recently announced it will purchase Andeavor, which would make it the nation's largest refiner. ( [Reuters](#) )
- In a study, the International Energy Agency calculated that only four out of 38 energy technologies and sectors - solar photovoltaic, electric vehicles, lighting, and data centers and networks - were on track last year to meet climate and air pollution goals in the long term. IEA Executive Director Fatih Birol said that "more vigorous action" is needed from many stakeholders to make the energy advances necessary to reduce emissions. ( [Reuters](#) )
- Decorations and a refurbished desk for Environmental Protection Agency Administrator Scott Pruitt's office cost at least \$9,600, according to an internal document sent to a staffer in the agency's general counsel, which tallies costs that appear to surpass the \$5,000 limit Congress places on redecoration before it requires agencies to notify lawmakers before authorizing the spending. EPA spokesman Jahan Wilcox defended the spending by contending that many of the items shouldn't be considered furnishing costs. ( [The Hill](#) )
- The New York Legislature officially appointed Barbara Underwood as the state's interim attorney general. Underwood, who has served in an acting capacity in that role since Eric Schneiderman resigned earlier this month amid abuse allegations, has said she will not run for the position in the upcoming election, and New York Democrats are expected to nominate a candidate for attorney general at a convention being held today on Long Island. ( [The Wall Street Journal](#) )

# Chart Review

## EPA chief is vulnerable despite low profile **Axios**

How familiar are you with the controversies involving Pruitt?



What should happen if he is found by the EPA inspector general to have misused his position, but President Trump thinks he's doing a good job?



Data: [HarrisX](#) online survey of 2,000 U.S. adults age 18 and over, May 4-5, 2018; Chart: Andrew Witherspoon/Axios

## Events Calendar (All Times Local)

### WEDNESDAY

NOAA Earth System Research Laboratory Global Monitoring Annual Conference	7 a.m.
Nuclear Energy Assembly	7 a.m.
Argus North American Natural Gas Markets conference	7:30 a.m.
Zinke to speak at Williston Basin Petroleum Conference	9:10 a.m.

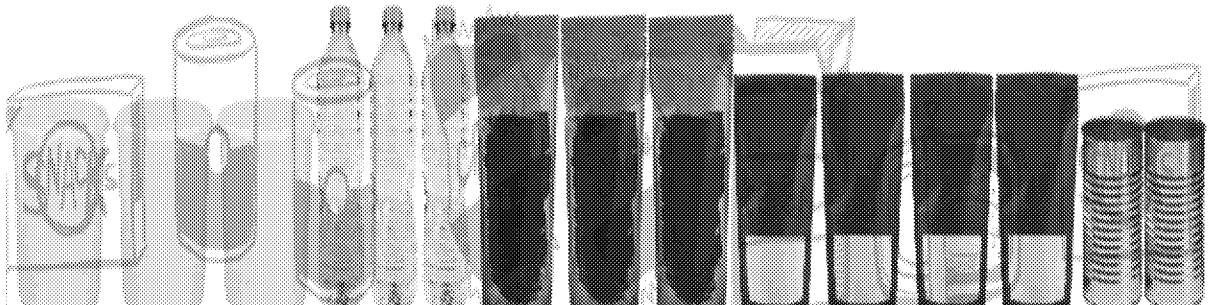
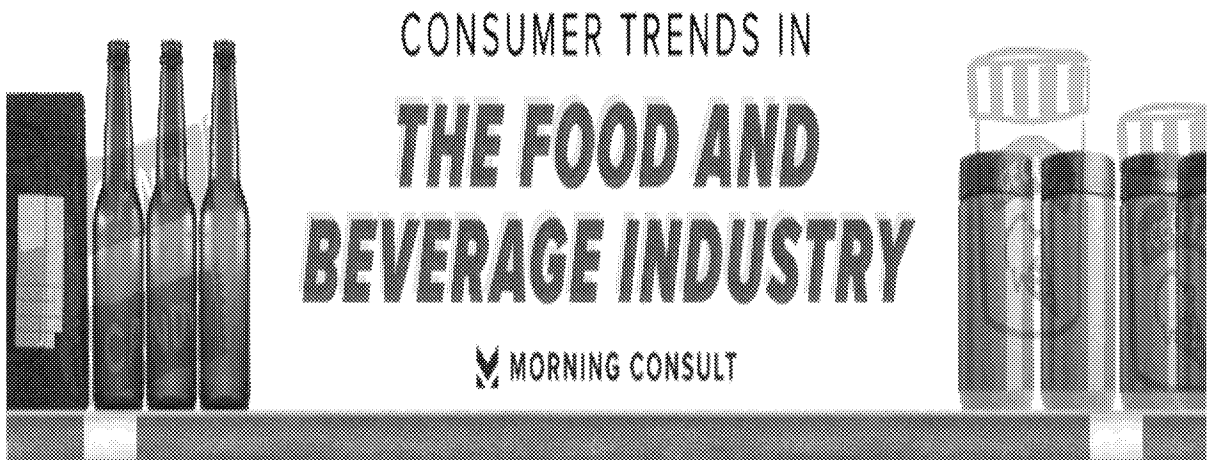
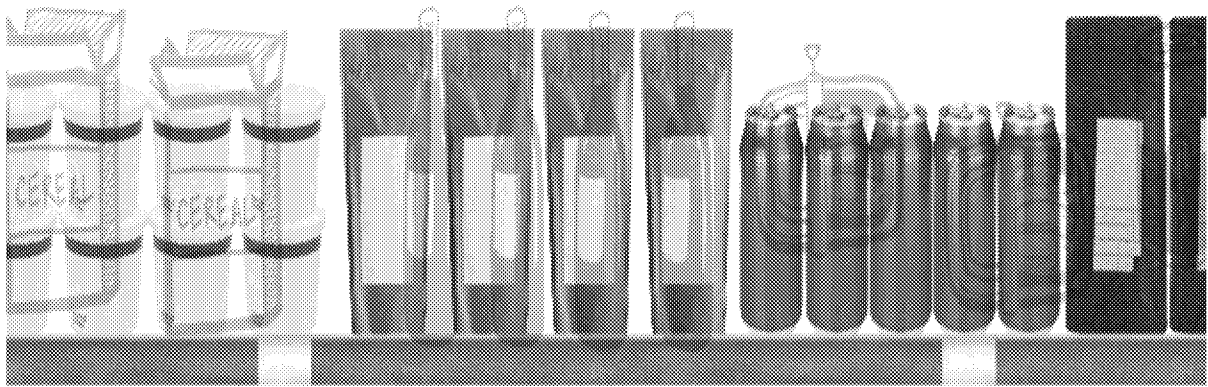
American Water Works Association webinar on harmful algal bloom monitoring	11 a.m.
Environmental and Energy Study Institute and American Biogas Council webcast on biogas as a waste management solution	2 p.m.
Atlantic Council discussion on European energy security	3 p.m.
Stanford University class on climate change	6:30 p.m.

## **THURSDAY**

Williston Basin Petroleum Conference	7:30 a.m.
Senate Appropriations markup of FY19 Energy and Water Development spending legislation	10:30 a.m.
CSIS conference on the future of nuclear power	12:30 p.m.
U.S. Green Building Council forum on net positive energy buildings	5:30 p.m.

## **FRIDAY**

No events scheduled



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### General

Few energy technologies, sectors on track for climate goals:  
IEA

**Nina Chestney, Reuters**

Only four of 38 energy technologies and sectors were on target last year to meet long-term climate and air pollution goals, a study by the International Energy Agency showed on Wednesday.

Pruitt spent at least \$9,600 on office decor, desks: email  
**Timothy Cama and Miranda Green, The Hill**

Environmental Protection Agency (EPA) head Scott Pruitt spent at least \$9,600 to decorate his personal office with Smithsonian artwork, a refurbished desk and other framed items, according to an internal document obtained by The Hill on Tuesday.

Barbara Underwood Is Named New York Attorney General  
**Corinne Ramey, The Wall Street Journal**

New York lawmakers Tuesday appointed Barbara Underwood as the state's 66th attorney general, making her the first woman to hold the position and allowing her to serve as the state's top prosecutor through the end of this year.

The new AG itching to take on Trump  
**Edward-Isaac Dovere, Politico**

The man aspiring to be the new face of the resistance is a practicing Sikh who likes to call attention to his turban and happens to have jurisdiction over 20 of President Donald Trump's properties, including Bedminster.

White House to 'look into' incident involving EPA turning away reporters  
**Brett Samuels, The Hill**

The White House said Tuesday it would "look into" an incident earlier in the day where the Environmental Protection Agency (EPA) barred reporters from entering an agency hearing.

Premature Birth Rates Drop in California After Coal and Oil Plants Shut Down  
**Sabrina Shankman, InsideClimate News**

Shutting down power plants that burn fossil fuels can almost immediately reduce the risk of premature birth in pregnant women living nearby, according to research published Tuesday.



An increase in gas prices easily outpaces the benefits of the tax bill for lower-income Americans

**Philip Bump, The Washington Post**

Let's say your car holds 12 gallons of gas. If you have filled up your gas tank nine times in the past week (for some reason), you have spent an average of about \$61 dollars more on gas this week than you would have the day President Trump was inaugurated. If you are in the bottom 20 percent of Americans in income, we have some bad news for you: There goes your tax cut.

Interior whistleblower complaints rise - but why?

**Hannah Northey, E&E News**

The rising number of Interior complaints could stem from wrongdoing or reflect disparate people from different parts of the country raising concerns about Zinke's tenure, said Nick Schwellenbach, a former OSC spokesman and now director of investigations at the nonpartisan Project on Government Oversight.

Senate panel unanimously approves water infrastructure bill

**Mallory Shelbourne, The Hill**

The Senate Environment and Public Works Committee on Thursday unanimously passed its bipartisan water infrastructure bill, putting the biennial legislation on track in the upper chamber.

Oil Edges Down on Potential OPEC Supply Increase

**Christopher Alessi, The Wall Street Journal**

Oil lost traction Wednesday morning on reports OPEC could ramp up crude production, even as prices continued to hover near 3½-year highs.

---

## **Oil and Natural Gas**

U.S. refining giant Marathon seeks EPA biofuel waiver - sources

**Jarrett Renshaw and Chris Prentice, Reuters**

Marathon Petroleum Corp, the second-biggest refining company in the United States, has asked the Environmental Protection Agency for a hardship waiver exempting one of its facilities from the nation's biofuels law, two sources with knowledge of the application told Reuters.

BP halts work on Iranian-owned field as US sanctions loom  
**Jillian Ambrose, The Telegraph**

BP has delayed its plans to drill a fresh well at one of its North Sea gas fields due to concerns that its Iranian partner could put the oil major in breach of looming US sanctions.

Atlantic Coast Pipeline sees ruling sidelining only 10 miles of 2018 construction  
**Maya Weber, Platts**

Atlantic Coast Pipeline on Tuesday estimated that only 10 miles of its 2018 construction areas for the 600-mile natural gas pipeline project will need to be on hold because of the US Court of Appeals for the 4th Circuit decision striking ACP's permit allowing incidental take of protected species.

Exelon drags LNG imports into push for federal bailout  
**Saqib Rahim, E&E News**

Typically, when a power plant announces its retirement, the local grid operator issues a short, dry document that amounts to a laconic goodbye.

Not in New England, where grid manager ISO New England is urging federal regulators to act quickly on a proposal to rescue four fossil-fired power plants in the Boston metropolitan area.

---

## Utilities and Infrastructure

Hawaiian Authorities Work to Protect Power Plant From Lava Flow  
**Jim Carlton, The Wall Street Journal**

Hawaiian authorities scrambled Tuesday to protect a major power plant from approaching lava, in the latest threat from renewed eruption of the Big Island's Kilauea volcano nearly three weeks ago.

What are utilities doing about the growing need for grid security?  
**Iulia Gheorghiu, Utility Dive**

Utilities are working to address cybersecurity on a distributed grid, hardening against natural disasters and making security as important as worker safety.

---

## Renewables

### Tesla hires Snap exec as engineering VP **Munsif Vengattil, Reuters**

Electric carmaker Tesla Inc said on Tuesday it had hired Snapchat maker Snap Inc's vice president of monetization engineering, Stuart Bowers, as VP of engineering, to work on its Autopilot software and other projects.

### Consumer Reports will retest Model 3 if Tesla improves braking distance

**Robert Ferris, CNBC**

Consumer Reports will re-evaluate Tesla's Model 3 if the electric car maker improves the vehicle's braking distance, the publication's director of automotive testing told CNBC on Tuesday.

---

## Coal

### As West Coast shuns coal, states like Wyoming will face difficult choices

**Heather Richards, Casper Star Tribune**

If Oregon, Washington and California ditch coal, it may leave Wyoming's largest utility, and its customers, holding a bag they don't want to carry, officials told lawmakers Monday.

---

## Nuclear

### New Jersey Governor Plans to Sign Nuclear Bailout Bill **Elise Young and Brian Eckhouse, Bloomberg**

New Jersey Governor Phil Murphy plans to sign a bill requiring utility customers to spend more than \$300 million a year to rescue struggling nuclear power plants run by Exelon Corp. and Public Service Enterprise Group Inc., according to a person familiar with the matter.

U.S. nuke rules soured acquisition interest from European utilities, former NRC regulator says  
**Gavin Bade, Utility Dive**

Multiple European utilities expressed interest in the past about buying at-risk U.S. nuclear plants, but were turned off by federal rules limiting foreign ownership of U.S. nuclear assets, a former Nuclear Regulatory Commissioner told a House committee on Tuesday.

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## **Climate**

How the "Carbon Budget" Is Causing Problems  
**Chelsea Harvey, E&E News**

Few ideas in climate science have gained greater public attention in the last decade than the concept of the "carbon budget." It's an estimate of how much carbon dioxide can be emitted by humans before temperatures spill over a potentially dangerous threshold.

Fresh from Hurricane Harvey's flooding, Houston starts to build anew - in the flood plain  
**Scott Wilson, The Washington Post**

A city chastened by disastrous flooding just months ago is trying to balance the need for new construction in a region short of housing with the civic fear that Houston is returning to its freewheeling ways.

---

## **Opinions, Editorials and Perspectives**

Kigali Amendment is Smart Economic and Environmental Policy  
**Demetrios Karoutsos, Morning Consult**

It's rare that any government regulations, let alone those dealing with the environment, have the support of Democrats, Republicans and the business community alike. That's the case with the Kigali Amendment to the Montreal Protocol dealing with reducing greenhouse gases, and that's why President Donald Trump should fully support the treaty's ratification.

Would firing Scott Pruitt save the EPA?  
**Leif Fredrickson et al., The Washington Post**

So many different scandals have engulfed Scott Pruitt, head of the Environmental Protection Agency (EPA), that multiple publications have created trackers to help readers sort them out.

### Michigan deal shows trend of ballot measures to boost renewable generation

**Mark Watson, Platts**

A recent agreement by two Michigan power companies to increase renewables by 2030 is part of a broader trend of using ballot initiatives to boost renewable development, but time will tell the impact of the deal, according to observers following the issue.

### A Greener Planet Could Slash Oil Company Income by \$19 Trillion to 2040

**Rachel Morison, Bloomberg**

The global transition to electric vehicles and renewable sources of power will see oil company revenue plummet.

### Rapid shale oil supply likely to disappoint in coming years: oil industry veteran

**Starr Spencer, Platts**

US oil production from shale and unconventional sources will grow in the future, but the rate will likely be less than most widely accepted sources currently predict, a well-respected industry veteran said Tuesday.

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## Research Reports

### Tracking Clean Energy

**International Energy Agency**

Some technologies have made tremendous progress in 2017 - particularly solar PV, LEDs and EVs - but most are not on track. Energy efficiency improvements have slowed and progress on key technologies like carbon capture and storage remains stalled.





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## ORAL ARGUMENT NOT YET SCHEDULED

No. 16-1005 (and consolidated cases)

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IN THE UNITED STATES COURT OF APPEALS  
FOR THE DISTRICT OF COLUMBIA CIRCUIT

---

AMERICANS FOR CLEAN ENERGY, et al.,

Petitioners

v.

ENVIRONMENTAL PROTECTION AGENCY,

Respondent

---

On Petition for Review of an Order of the  
United States Environmental Protection Agency

---

BRIEF FOR CVR ENERGY, INC.  
AS AMICUS CURIAE SUPPORTING PETITIONERS

---

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Smithyman & Zakoura, Chartered  
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**CERTIFICATE AS TO PARTIES, RULINGS, AND RELATED CASES**

**A. Parties, Intervenors, and Amici.** Except for amicus CVR Energy, Inc., all parties, intervenors, and amici known to amicus are identified in the Obligated Party Petitioners' Opening Brief.

**B. Rulings Under Review.** Reference to the ruling under review appears in the Obligated Party Petitioners' Opening Brief.

**C. Related Cases.** All related cases known to amicus are identified in the Obligated Party Petitioners' Opening Brief.



**CORPORATE DISCLOSURE STATEMENT**

Pursuant to D.C. Circuit Rule 26.1, CVR Energy, Inc., discloses that Icahn Enterprises, L.P., a publicly held company, holds a greater than 10% ownership interest in it.

## TABLE OF CONTENTS

	<b>Page</b>
Glossary.....	vi
Interest of Amicus Curiae .....	1
Rule 29 Disclosure .....	3
Summary of Argument .....	4
Argument.....	5
A.    EPA has created a dysfunctional RIN market because its regulations governing the market violate the Clean Air Act .....	5
B.    CVR exemplifies the harms caused by EPA’s dysfunctional RIN market.....	11
Conclusion .....	14

## TABLE OF AUTHORITIES

	Page
<b>Cases</b>	
* <i>Am. Petroleum Inst. v. EPA</i> , 706 F.3d 474 (D.C. Cir. 2013) .....	6
<i>Nat’l Parks &amp; Conserv. Ass’n v. Morton</i> , 498 F.2d 765 (D.C. Cir. 1974).....	8
<b>Statutes</b>	
5 U.S.C. § 552(b)(4).....	8
42 U.S.C. § 7545(o)(5).....	2, 8
*42 U.S.C. § 7545(o)(5)(A)(i) .....	5, 8
*42 U.S.C. § 7545(o)(5)(B) .....	1, 5, 7
42 U.S.C. § 7545(o)(9)(B)(i) .....	12
<b>Other Authorities</b>	
40 C.F.R. § 80.1450(e).....	6
Geoff Cooper, <i>What do Big Oil’s Quarterly Earnings Say About the Real Impact of RINs on U.S. Gas Prices?</i> , Renewable Fuels Association (Aug. 1, 2013), <a href="http://ethanolrfa.org/2013/08/what-do-big-oils-quarterly-earnings-say-about-the-real-impact-of-rins-on-u-s-gas-prices">http://ethanolrfa.org/2013/08/what-do-big-oils-quarterly-earnings-say-about-the-real-impact-of-rins-on-u-s-gas-prices</a> .....	9
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\* Authorities on which we chiefly rely are marked with an asterisk.

Environmental Protection Agency and Commodity Futures Trading Commission, <i>Memorandum of Understanding on the Sharing of Information Available to EPA Related to the Functioning of Renewable Fuel and Related Markets</i> (Mar. 15, 2016), <a href="https://www.epa.gov/sites/production/files/2016-03/documents/epa-cftc-mou-2016-03-16.pdf">https://www.epa.gov/sites/production/files/2016-03/documents/ epa-cftc-mou-2016-03-16.pdf</a> .....	10
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Michael Lewis, <i>Murphy USA Makes a Mint From Convenience Store Goods and Fuel Credits</i> , The Motley Fool (Feb. 22, 2014), <a href="http://www.fool.com/investing/general/2014/02/22/murphy-usa-makes-a-mint-from-convenience-store-goo.aspx">http:// www.fool.com/investing/general/2014/02/22/murphy-usa- makes-a-mint-from-convenience-store-goo.aspx</a> .....	9
Gretchen Morgenson and Robert Gebeloff, <i>Wall Street Exploits Ethanol Credits, and Prices Spike</i> , N.Y. Times, Sept. 13, 2013, at A1 .....	9, 10
Chris Prentice, <i>Niche RINS prices jump to 2013 highs as supply jitters return</i> , Reuters (June 29, 2016), <a href="http://www.reuters.com/article/usa-biofuels-idUSL1N19L14A">http://www.reuters.com/article/ usa-biofuels-idUSL1N19L14A</a> .....	9
Regulation of Fuels and Fuel Additives: Renewable Fuel Standard Program, 72 Fed. Reg. 23,900 (May 1, 2007).....	6, 13
Regulation of Fuels and Fuel Additives: Changes to Renewable Fuel Standard Program, 75 Fed. Reg. 14,670 (Mar. 26, 2010) .....	9, 10
Renewable Fuel Standard Program: Standards for 2014, 2015, and 2016 and Biomass-Based Diesel Volume for 2017, 80 Fed. Reg. 77,420 (Dec. 14, 2015) .....	

**GLOSSARY**

CVR	CVR Energy, Inc.
EPA	Environmental Protection Agency
RIN	Renewable Identification Number
RFS	Renewable Fuel Standard

## **INTEREST OF AMICUS CURIAE**

CVR Energy, Inc. (“CVR”) is engaged in refining and fertilizer manufacturing through its ownership in CVR Refining, LP, which owns refineries in Kansas and Oklahoma, and its ownership in CVR Partners, LP, which owns fertilizer manufacturing plants in Kansas and Illinois. This case involves a challenge to EPA’s implementation of the Renewable Fuel Standard Program. Because of its ownership of refineries that must comply with the RFS regulations and fertilizer plants that supply critical products to renewable fuel producers, CVR has a strong interest in the resolution of this case.

CVR submits this brief in support of certain petitioners’ arguments that EPA was required to determine whether the definition of “obligated party” should include blenders. CVR’s interests are not adequately represented by the petitioners because no petitioner has brought to the Court’s attention that (1) the root cause of the market manipulation, speculation, and fraud in the credit trading program is EPA’s departure from Section 211(o)(5) of the Clean Air Act, 42 U.S.C. § 7545(o)(B), which precludes unobligated parties from generating, buying and selling RINs, or (2) the unique harm suffered by CVR as an owner of regulated refineries and fertilizer manufacturing plants, both of which will be adversely affected by the agency’s failure to close the blender loophole.

While petitioners argue in their opening brief that leaving blenders unobligated has caused the dysfunction in the RIN market, they did not identify for the Court the root cause of the market dysfunction, which was EPA's departure from Section 7545(o)(5) in its implementing regulations.<sup>1</sup> The statute required EPA to develop regulations for the generation of credits only by parties that over-comply—in other words, parties that are subject to the regulations and that blend renewable fuel in excess of their obligation—and for the sale of credits only to parties for purposes of compliance.<sup>2</sup>

CVR's interests are not represented by petitioners because they did not present this argument to the Court. CVR believes that this brief will assist the Court in understanding the root cause of the market manipulation and fraud in the RIN market and the agency's need to use its general waiver authority to reduce the statutory volumes. CVR is differently situated from the individual petitioners because of its ownership interest in fertilizer manufacturing plants, which benefit

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<sup>1</sup> CVR is not challenging the underlying regulations, which were promulgated in 2010, but is explaining that the regulations' departure from the statute in EPA's implementing regulations, together with the agency's failure to determine whether it remains appropriate to leave blenders unobligated, explains the RIN market dysfunction, which compelled the agency to exercise its statutory waiver authority.

<sup>2</sup> "[T]he program incorporates a market solution to the process of fulfilling the mandates, allowing trading between the obligated parties from those who over-comply to those who find it less advantageous to blend renewable fuels into the transportation fuel mix." Department of Energy, *Small Refinery Exemption Study: An Investigation into Disproportionate Economic Hardship* 2 (Mar. 2011).

from the production of renewable fuel and are harmed by the agency's use of its statutory waiver authority. With the possible exception of Valero Energy Corporation, no other petitioner that supports changing the definition of "obligated party" to include blenders is harmed by the agency's use of its statutory waiver authority. While Valero owns renewable fuel production facilities, because of its size, it has access to capital and markets that CVR does not. CVR is also not represented by the American Fuel & Petrochemical Manufacturers because AFPM represents the refining industry as a whole, including large, vertically integrated refiners that are also members of the American Petroleum Institute, which opposes changing the definition of "obligated party" to include blenders in favor of broader reforms to the RFS regime. So far as CVR is aware, no other amicus has interests similar to its own, and no other petitioner has raised the unique issues being raised by CVR.

### **RULE 29 DISCLOSURE**

This brief was drafted in substantial part by Perkins Coie, LLP, which is also counsel for petitioners Alon Refining Krotz Springs, Inc., American Refining Group, Inc., Calumet Specialty Products Partners, L.P., Ergon-West Virginia, Inc., Hunt Refining Company, Lion Oil Company, Placid Refining Company, U.S. Oil & Refining Co., and Wyoming Refining Company ("the Coalition"). Perkins Coie has been CVR's environmental counsel for more than ten years, and therefore



CVR sought Perkins Coie's assistance when it determined that an important issue in which it has a unique interest was not addressed by petitioners' brief. This brief is not being filed to circumvent the word limit on petitioners' brief. Rather, because of Perkins Coie's role as counsel to the Coalition, Perkins Coie is able to ensure that this brief is not duplicative of the issues raised by the petitioners. The Advisory Committee Notes to the 2010 amendments to Federal Rule of Appellate Procedure 29 note "that coordination between the amicus and the party whose position the amicus supports is desirable, to the extent that it helps to avoid duplicative arguments," which it will do in this case.

### **SUMMARY OF ARGUMENT**

CVR agrees with the obligated party petitioners that EPA erred in placing the compliance obligation on refiners and importers, but not blenders. EPA's failure to determine the appropriate obligated party in the current rulemaking was arbitrary and capricious not only for the reasons set out in petitioners' briefs but also for two additional reasons. First, EPA's decision to allow non-obligated parties to participate in the RIN market is the root cause of the dysfunction in the RIN market, necessitating the agency's use of its statutory waiver authority to reduce the annual renewable fuel volume targets set by Congress. Second, the dysfunctional RIN market harms CVR's fertilizer and refining business because it creates a need for EPA to use its waiver authority and because CVR's refineries

are not vertically integrated—that is, they do not own downstream blending and retail operations—and therefore cannot generate sufficient RINs from blending but must purchase RINs from non-obligated blenders and market speculators for compliance.<sup>3</sup>

## ARGUMENT

### **A. EPA has created a dysfunctional RIN market because its regulations governing the market violate the Clean Air Act**

Congress directed EPA to provide “for the generation of an appropriate amount of credits by any person that refines, blends, or imports gasoline that contains a quantity of renewable fuel that is greater than the quantity required.” 42 U.S.C. § 7545(o)(5)(A)(i). The statute provides that an entity that generates RINs “may use the credits, or transfer all or a portion of the credits to another person, for the purpose of complying” with the obligations imposed by the regulations. *Id.* § 7545(o)(5)(B). Significantly, the statute contemplates that obligated parties will be the only participants in the RIN market and that RINs will be generated only for volumes of renewable fuel blended in excess of the statutory volumes. Under Section 7545(o)(5)(B), a party that “generates credits”—that is, by blending—may choose to “use the credits” or to “transfer all or a portion of the credits to another

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<sup>3</sup> An “non-obligated blender” is a blender that is not an “obligated party” under the rule or is a vertically integrated refiner that generates excess RINs from blending. For refiners that generate excess RINs from blending, unobligated blending refers to the generation of RINs in excess of their compliance obligation, known as the “renewable volume obligation.”

person,” but only “for the purpose of complying” with the RFS requirements, not for the purpose of speculation. EPA, however, has chosen to allow non-obligated parties, such as banks, to speculate in the RIN market and has allowed non-obligated blenders to generate RINs from blending below statutory volumes. *See* 40 C.F.R. § 80.1450(e).

Because EPA has chosen to place the compliance obligation on refiners, independent refiners, who do not control the blending and retail sale of their fuel, are obligated to purchase RINs at the end of each compliance year to demonstrate compliance. *See* Regulation of Fuels and Fuel Additives: Renewable Fuel Standard Program, 72 Fed. Reg. 23,900, 23,904 (May 1, 2007) (“2007 Rule”) (acknowledging that “[m]any obligated parties do not have access to renewable fuels or the ability to blend them, and so must use credits to comply”); *Am. Petroleum Inst. v. EPA*, 706 F.3d 474, 480 (D.C. Cir. 2013) (noting that refiners “are in no position to ensure, or even contribute to, [the statutory goal of] growth” in the use of renewable fuels by blenders). While these “merchant” refineries are required to comply with the rule by purchasing and retiring RINs to demonstrate compliance, downstream non-obligated blenders and retailers generate and control the RINs. Refineries must have RINs to deliver to EPA by a date certain, but the only persons they can purchase these RINs from are non-obligated blenders and market speculators.

The non-obligated blenders understand the refineries' predicament and their own market power and have realized they can squeeze higher and higher prices from merchant refiners. RINs are now selling at many times what it would cost the refineries to produce them if they were able to do so, putting merchant refiners at an extreme competitive disadvantage that serves no regulatory purpose and, in fact, has acted as a market constraint preventing more renewable fuel blending. *See* Obligated Party Pet. Br. 15-17.

Worse, because of the sharp rise in the price of RINs—4,000 to 5,000 percent since the start of the program—speculators and large investment banks have entered the picture and are competing with refineries to purchase RINs. In a classic “short squeeze,” these speculators are buying and selling RINs, hoping to get much higher prices as the time nears when refineries are obligated to deliver RINs to the EPA for compliance. These market speculators have no ability to expand renewable fuel use. They are in the market solely to earn a profit from speculating on RINs, an activity that is prohibited by Section 7545(o)(5)(B), which contemplates that only obligated parties will participate in the market.

Market speculation has also occurred because of the extraordinary value of the RIN market, conservatively estimated to be worth more than \$16 billion for

2014 alone.<sup>4</sup> The size of the market is a function of EPA's decision to disregard 42 U.S.C. § 7545(o)(5)(A)(i) by allowing parties to generate RINs from blending below statutory levels—for example, a non-obligated party can generate RINs by blending 1% ethanol with gasoline in the face of a 10% mandate. Had EPA, in accordance with Section 7545(o)(5), allowed RINs to be generated only for volumes blended in excess of the standards, the RIN market would be a small fraction of its current size and would not be attracting Wall Street speculators.<sup>5</sup>

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<sup>4</sup> This value is based on the number of RINs generated in 2014, as provided by EPA at <https://www.epa.gov/fuels-registration-reporting-and-compliance-help/2014-renewable-fuel-standard-data>; the price of 2014-vintage RINs on August 1, 2016, as provided by the Oil Price Information Service (“OPIS”); and the price EPA set for cellulosic waiver credits for compliance year 2014. These calculations exclude the small number of cellulosic diesel RINs generated in 2014 because prices for these RINs are not readily available from OPIS. If cellulosic diesel RINs were included, the value of the RIN market would be even higher.

<sup>5</sup> EPA previously refused to produce documents in response to a Freedom of Information Act request seeking the identity of parties buying, selling, and trading RINs for purposes of determining whether and to what extent market speculation was occurring. *Perkins Coie LLP v. McCarthy*, No. 13-cv-1799 (D.D.C. 2013). EPA claimed that the information was confidential because it would disclose the competitive positions of the market participants. Non-obligated parties should not have a competitive market position in a credit trading program designed to facilitated regulated entities' compliance with environmental regulations. *See* 5 U.S.C. § 552(b)(4); *Nat'l Parks & Conserv. Ass'n v. Morton*, 498 F.2d 765, 770 (D.C. Cir. 1974) (FOIA Exemption 4 protects information involuntarily provided to the government only if (1) the disclosure of the information is likely to impair the government's ability to obtain necessary information in the future, or (2) the person submitting the information will suffer significant competitive harm if the information is released.).

If the RIN trading system were working as intended, RIN prices would be comparable to blending costs. *See* Regulation of Fuels and Fuel Additives: Changes to Renewable Fuel Standard Program, 75 Fed. Reg. 14,670, 14,722 (Mar. 26, 2010); Department of Energy, *Small Refinery Exemption Study: An Investigation into Disproportionate Economic Hardship* 2-3 (Mar. 2011) (“Economic theory suggests that the price of RINs would reflect the marginal cost of compliance with the RFS, that is, the most expensive cost of blending renewable fuels.”) (“DOE Study”). In fact, RIN prices are now many times higher than blending costs.<sup>6</sup>

The result has been a windfall for entities that can generate and sell RINs. *See, e.g.,* Michael Lewis, *Murphy USA Makes a Mint From Convenience Store Goods and Fuel Credits*, *The Motley Fool* (Feb. 22, 2014), <http://www.fool.com/investing/general/2014/02/22/murphy-usa-makes-a-mint-from-convenience-store-goo.aspx>; Geoff Cooper, *What do Big Oil’s Quarterly Earnings Say About the Real Impact of RINs on U.S. Gas Prices?*, *Renewable Fuels Association* (Aug. 1, 2013), <http://ethanolrfa.org/2013/08/what-do-big-oils-quarterly-earnings-say-about-the-real-impact-of-rins-on-u-s-gas-prices>. It has also been a windfall for entities that speculate in the RIN market. *See* Gretchen Morgenson and Robert Gebeloff, *Wall*

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<sup>6</sup> *See* Chris Prentice, *Niche RINS prices jump to 2013 highs as supply jitters return*, *Reuters* (June 29, 2016), <http://www.reuters.com/article/usa-biofuels-idUSL1N19L14A>.

*Street Exploits Ethanol Credits, and Prices Spike*, N.Y. Times, Sept. 13, 2013, at A1. And because that market lacks the regulatory safeguards associated with other markets, it invites not merely speculation, but fraud and manipulation. *See id.* (noting that the “rules that apply to almost every other market—on transparency, disclosure and position limits, for example—are not imposed on the trade of RINs”); *see also, e.g.*, Mark Drajem, *EPA to Invalidate 30 Million Fuel Credits After Fraud*, Bloomberg (Dec. 18, 2013), <http://www.bloomberg.com/news/articles/2013-12-18/epa-to-invalidate-30-million-fuel-credits-after-fraud>; Environmental Protection Agency and Commodity Futures Trading Commission, *Memorandum of Understanding on the Sharing of Information Available to EPA Related to the Functioning of Renewable Fuel and Related Markets* (Mar. 15, 2016), <https://www.epa.gov/sites/production/files/2016-03/documents/epa-cftc-mou-2016-03-16.pdf>.

EPA theorized that high prices in the RIN market should encourage the distribution and use of more renewable fuels, but it has since acknowledged that this is not the case. In adopting the final rule at issue here, EPA conceded that the RIN market “was not sufficiently responsive to higher RIN prices to drive large increases in E85 sales volumes” and that it was “unlikely to be able to significantly impact the supply of ethanol in the United States.” Renewable Fuel Standard Program: Standards for 2014, 2015, and 2016 and Biomass-Based Diesel Volume

for 2017, 80 Fed. Reg. 77,420, 77,457, 77,459 (Dec. 14, 2015). That is because unobligated blenders choose to retain their RIN revenues, rather than passing them along to consumers in the form of discount on higher ethanol blends. They are able to do so because of EPA's choice to obligate refiners and importers, but not blenders. Essentially, EPA is trying to encourage more renewable fuel use by increasing the profits of non-obligated blenders in the hopes that they may voluntarily choose to invest in more blending and distribution infrastructure, rather than obligating them directly, which would create both a legal obligation and financial incentive to blend more fuel and generate more RINs.

More fundamentally, RINs were never intended to be a tool to drive investments in more renewable fuel use. They were intended to be a compliance tool for refiners that could not comply through blending. *See Obligated Party Pet.* Br. 7-8.

The harms caused by EPA's design of the RIN market thus cannot be justified by any offsetting benefits. As designed by EPA, the market violates the Clean Air Act, and EPA acted arbitrarily and capriciously in refusing to reconsider its decision to leave blenders unobligated.

**B. CVR exemplifies the harms caused by EPA's dysfunctional RIN market**

The market constraints caused by EPA's creation of a dysfunctional and unlawful RIN market—and EPA's failure to reconsider whether it remained



“appropriate” to leave blenders unobligated—compelled the agency to use its statutory waiver authority to lower the statutory volumes. This has caused harm to CVR’s fertilizer manufacturing facilities because it has discouraged increased production of renewable fuel.

At the same time, CVR’s refineries are harmed by the dysfunctional RIN market because they have a far higher cost of compliance than their direct market competitors, who control the blending and retail distribution of their fuel. That is precisely the harm anticipated by the Department of Energy, which observed that “[t]hose parties that are short, i.e. cannot generate enough RINs through their own facilities to meet their [compliance obligation], will need to purchase RINs and could suffer significant economic hardship” if the price of RINs were to exceed the cost of blending. DOE Study 18. CVR initially obtained relief as a small refinery, *see* 42 U.S.C. § 7545(o)(9)(B)(i), but it no longer qualifies as a small refinery. Nevertheless, it has continued to suffer hardship from the compliance obligation in all of the ways described in the DOE Study.

CVR’s hardship does not reflect a failure to make investments in the use of renewable fuel. To the contrary, CVR has made significant investments in increasing its refineries’ ability to blend renewable fuel. As a result of its multi-million dollar investments, the company is now able to blend approximately 20%

of the fuel it produces, but the remaining 80% of its obligation must be satisfied through the purchase of RINs.

Congress intended for RINs to be one method of demonstrating compliance. It did not intend to force competitively disadvantaged refiners to become vertically integrated in order to avoid the harm of the RIN market. *See* 2007 Rule, 72 Fed. Reg. at 23,904 (“Many obligated parties do not have access to renewable fuels or the ability to blend them, and so must use credits to comply. . . . This creates the need for trading mechanisms that ensure that the means to demonstrate compliance will be readily available for use by obligated parties.”). Indeed, there is no need for all refiners to invest in blending infrastructure because the infrastructure already exists; the problem is that it is owned by non-obligated blenders who have no incentive to increase blending. Rather, their incentive is to increase the value of their RINs by forestalling investments in more renewable fuel blending.<sup>7</sup> The result is that in order to avoid the extreme competitive disadvantage of having to buy RINs in the dysfunctional and unlawful RIN market, CVR would need to become a vertically integrated refiner by buying a blender/retailer chain.

Forcing merchant refiners to become vertically integrated refiners would be inefficient and undesirable, reversing the last 20 years of de-integration in the

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<sup>7</sup> *See* Letter from Ronald Minsk, former Special Assistant to the President for Energy and Environment, to Janet McCabe, Acting Assistant Administrator for Air and Radiation, Environmental Protection Agency (July 24, 2015) (Attachment B to June 13, 2016 petition for rulemaking of Valero Energy Corporation).

refinery industry.<sup>8</sup> The current regime is contrary to the Clean Air Act, which contemplated that RINs would be a tool that *all* refineries could use for compliance.

### CONCLUSION

The petitions for review should be granted.

Respectfully submitted.

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<sup>8</sup> *Id.*

**CERTIFICATE OF COMPLIANCE**

I certify that this brief complies with the type-volume limitations of Fed. R. App. P. 29(d) and 32(a)(7)(B) because it contains 3,183 words, excluding the parts of the brief exempted by Fed. R. App. P. 32(a)(7)(B)(iii). I further certify that the brief complies with the typeface requirements of Fed. R. App. P. 32(a)(5) and the type style requirements of Fed. R. App. P. 32(a)(6) because it has been prepared in a proportionally spaced typeface using Microsoft Word 2010 in 14-point Century Schoolbook font.

s/ Lee M. Smithyman

Lee M. Smithyman

Dated: September 15, 2016

**CERTIFICATE OF SERVICE**

I certify that on September 15, 2016, I electronically filed the foregoing brief with the Clerk of Court for the United States Court of Appeals for the District of Columbia Circuit by using the CM/ECF system. I further certify that all participants in the case are registered CM/ECF users and that service will be accomplished by the CM/ECF system.

s/ Lee M. Smithyman

Lee M. Smithyman

**ORAL ARGUMENT NOT YET SCHEDULED**

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No. 16-1005, consolidated with Nos. 16-1044, 16-1047, 16-1049, 16-1050, 16-1053, 16-1054, 16-1056

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IN THE UNITED STATES COURT OF APPEALS  
FOR THE DISTRICT OF COLUMBIA CIRCUIT

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Americans for Clean Energy, et al.,  
*Petitioners,*  
v.

United States Environmental Protection Agency, and Regina A. McCarthy,  
Administrator,  
*Respondents.*

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On Petitions of Review of Final Action  
by the United States Environmental Protection Agency

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**BRIEF OF AMICI CURIAE AMERICAN SOYBEAN ASSOCIATION, U.S.  
CANOLA ASSOCIATION, NATIONAL RENDERERS ASSOCIATION,  
CANOLA COUNCIL OF CANADA, AND ARVEGENIX, INC. IN SUPPORT  
OF PETITIONERS**

---

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**CERTIFICATE AS TO PARTIES, RULINGS, AND RELATED CASES**

Pursuant to D.C. Circuit Rule 28(a)(1), counsel certifies as follows:

**A. Parties and Amici**

Except for the *amici curiae* on this brief, all parties, intervenors, and *amici* appearing in this Court are, to the best of my knowledge, listed in the Certificate as to Parties, Rulings, and Related Cases to Petitioners' Initial Briefs [Doc. #1634783 and #1634785].

**B. Rulings Under Review**

Reference to the rulings under review is listed in the Certificate as to Parties, Rulings, and Related Cases to Petitioners' Initial Briefs [Doc. #1634783 and #1634785].

**C. Related Cases**

Reference to the related cases is listed in the Certificate as to Parties, Rulings, and Related Cases to Petitioners' Initial Briefs [Doc. #1634783 and #1634785].

Dated: September 15, 2016

Respectfully submitted,

/s/ Jerome C. Muys, Jr.

Jerome C. Muys, Jr.

**CORPORATE AND FINANCIAL DISCLOSURE STATEMENT**

Pursuant to Federal Rule of Appellate Procedure 26.1, D.C. Circuit Rule 26.1, and Fed. R. App. P. 29(c):

- American Soybean Association, U.S. Canola Association, National Renderers Association, and Canola Council of Canada are not-for-profit trade associations as defined in D.C. Circuit Rule 26.1(b). The trade associations have no parent company or companies and have issued no stock; therefore, no publicly-held company owns any such stock.
- Arvegnix, Inc. does not have a parent company. No publicly-held company owns 10% or more of the company's stock.

The general nature and purpose of *amici curiae*, insofar as relevant to this litigation, is provided in this brief.

Dated: September 15, 2016

Respectfully submitted,

/s/ Jerome C. Muys, Jr.

Jerome C. Muys, Jr.



## TABLE OF CONTENTS

CERTIFICATE AS TO PARTIES, RULINGS, AND RELATED CASES .....	i
CORPORATE AND FINANCIAL DISCLOSURE STATEMENT .....	ii
TABLE OF CONTENTS .....	iii
TABLE OF AUTHORITIES .....	v
GLOSSARY OF ACRONYMS AND ABBREVIATIONS .....	ix
INTRODUCTION TO THE RENEWABLE FUEL STANDARD .....	1
INTERESTS OF <i>AMICI CURIAE</i> .....	2
SUMMARY OF THE ARGUMENT .....	8
ARGUMENT .....	9
I. The Biomass-Based Diesel Industry Has the Capability to Meet Increased Volume Standards Under the Advanced Biofuel Category .....	9
A. EPA Exercised Its Waiver Authority Based upon an Inaccurate View of the Diesel Market as a Subset of Transportation Fuels, Including the Amount of Biomass-Based Diesel Actually Available in the U.S. ....	10
B. EPA Exercised its Waiver Authority Based upon an Inaccurate View of Biomass-Based Diesel Production and Domestic Distribution Capabilities .....	14
II. EPA Has Removed Market Signals and Regulatory Certainty Required for Biomass-Based Diesel Market Stability and Future Growth .....	18
III. Increased Advanced Biofuels Volumes and a Healthy Biomass-Based Diesel Industry Fulfills Congress’s Intent under the RFS Program .....	23
IV. Biomass-Based Diesel is a Distinct Market within the Advanced Biofuels Category that Furthers Congress’s Goal of Fuel Diversity, the Growth of which is Constrained by the Final Rule .....	29
CONCLUSION .....	31

CERTIFICATE OF COMPLIANCE.....	33
CERTIFICATE REGARDING SEPARATE BRIEFING.....	34
CERTIFICATE FEDERAL RULE OF APPELLATE PROCEDURE 29(c) .....	35
CERTIFICATE OF SERVICE .....	36

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42 U.S.C. § 7545(o)(2)(A) (2012) .....	18
42 U.S.C. § 7545(o)(2)(B) (2012) .....	19
42 U.S.C. § 7545(o)(2)(B)(i) (2012) .....	2, 19, 23
42 U.S.C. § 7545(o)(2)(B)(i)(II) (2012) .....	10
42 U.S.C. § 7545(o)(2)(B)(i)(IV)(ii) (2012) .....	11
42 U.S.C. § 7545(o)(7)(A) (2012) .....	2
42 U.S.C. § 7545(o)(7)(D) (2012) .....	2
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## GLOSSARY OF ACRONYMS AND ABBREVIATIONS

<u>Acronym/Abbreviations</u>	<u>Definition</u>
<i>Amici Curiae</i>	American Soybean Association, U.S. Canola Association, National Renderers Association, Canola Council of Canada, and Arvegenix, Inc.
CAA	Clean Air Act, 42 U.S.C. § 7545
CO <sub>2</sub>	Carbon Dioxide
EIA	U.S. Energy Information Administration
EISA	Energy Independence and Security Act of 2007, Pub. L. No. 110-140, 121 Stat. 1492
EPA or Agency	U.S. Environmental Protection Agency
Final Rule	Renewable Fuel Standard Program: Standards for 2014, 2015, and 2016 and Biomass-Based Diesel Volume for 2017. 80 Fed. Reg. 77420 (Dec. 14, 2015).
GHG	Greenhouse Gas
NBB	National Biodiesel Board
RFS	Renewable Fuel Standard
RIN	Renewable Identification Number
RVO	Renewable Volume Obligation

## INTRODUCTION TO THE RENEWABLE FUEL STANDARD

This proceeding concerns the United States Environmental Protection Agency's ("EPA" or "Agency") Final Rule, the Renewable Fuel Standard Program: Standards for 2014, 2015, and 2016 and Biomass-Based Diesel Volume for 2017, 80 Fed. Reg. 77,420 (Dec. 14, 2015). The Final Rule established the annual percentage standards for cellulosic biofuel, biomass-based diesel, advanced biofuel, and total renewable fuel that applies to transportation fuel (i.e., gasoline and diesel) produced or imported in the years 2014, 2015, and 2016. The Final Rule also established the minimum volumes for biomass-based diesel for 2017.

In its simplest terms, the RFS program is a national policy that requires a certain volume of renewable fuel (e.g., cellulosic biofuel, biomass-based diesel, advanced biofuel, and total renewable) to replace or reduce petroleum-derived transportation fuel. See Clean Air Act § 211(o), 42 U.S.C. § 7545(o). Each year, importers and refiners of petroleum products ("Obligated Parties") are required to produce or acquire a statutorily specified amount of renewable fuels and to incorporate them into the transportation fuel market with their petroleum-derived fuels. This includes purchasing Renewable Identification Numbers ("RINs")—essentially the "green" attributes of a renewable fuel and the currency of the RFS program. A certain number of RINs can be acquired from "conventional" biofuels,



and a certain number must be acquired from “advanced” biofuels—a subcategory of the RFS. Biomass-based diesel is a type of advanced biofuel.

Specified statutory minimum volume requirements for advanced biofuels and cellulosic biofuels are outlined in tables within the Clean Air Act (“CAA”) and increase incrementally extended out to year 2022. Each year, EPA sets the Renewable Volume Obligation (“RVO”) based upon those tables.<sup>1</sup> Congress provided EPA limited waiver authority: a general waiver<sup>2</sup> and a waiver for cellulosic biofuels.<sup>3</sup> Utilizing its waiver authority, EPA may deviate from the tables and establish lower volume standards, subject to the limitations imposed by Congress. EPA’s use of its waiver authority forms the basis of some of the issues challenged in this action.

### **INTERESTS OF *AMICI CURIAE***

*Amici* American Soybean Association, U.S. Canola Association, National Renderers Association, Canola Council of Canada, and Arvegenix, Inc. are “on-the-ground” businesses and national, not-for-profit trade associations that believe in a strong RFS program; consequently, they believe that larger volume standards than proposed by EPA are warranted and reasonable. As the producers of

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<sup>1</sup> 42 U.S.C. § 7545(o)(2)(B)(i). After calendar year 2022, EPA sets volumes based on listed factors. 42 U.S.C. § 7545(o)(2)(B)(ii).

<sup>2</sup> 42 U.S.C. § 7545(o)(7)(A).

<sup>3</sup> 42 U.S.C. § 7545(o)(7)(D).

feedstocks used to synthesize biomass-based diesel fuel, *Amici* represent the industry participants most invested in the industry, and particularly affected by the Final Rule. Thus, *Amici* will provide a unique perspective that will aid the Court's deliberations.

Prompted by Congress's desire to promote non-petroleum transportation fuels for use in standard engine designs in the modern vehicle marketplace, *Amici* made significant investment to produce, expand, and improve these feedstocks as a substitute for petroleum-derived diesel. Diesel operates in a market distinct from regular petroleum gasoline as diesel fuel is typically utilized in particular engine types found in, among other things, heavy-duty trucks, buses, jets, military vehicles, mining equipment, marine engines, farm equipment, and other off-road vehicles, and even used to heat homes. Thus, *Amici*, as participants in the biomass-based diesel supply chain, operate in a specialized market-space within transportation fuels, and hold views distinct from other biofuels that are active in the gasoline sector.

The American Soybean Association represents nearly 600,000 U.S. soybean producers across 30 states.<sup>4</sup> While biomass-based diesel is now or can be produced using a diverse and growing volume of feedstocks (e.g., soybean oil, canola oil,

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<sup>4</sup> Comments of the American Soybean Association (Jul. 24, 2015), EPA-HQ-OAR-2015-0111-1818.

rendered animal fats, pennycress oil, refined cooking oil/grease, and algae), soybean oil remains the largest source of biodiesel feedstock.<sup>5</sup> The American Soybean Association primarily focuses on policy development and implementation for its members.<sup>6</sup>

The U.S. Canola Association represents all industry segments, including farmers, processors, food manufacturers, exporters, seed companies and crop protection companies, and includes a number of producers in all five domestic canola growing regions.<sup>7</sup> The U.S. Canola Association helps its members develop and implement agricultural policies, promote efficient production of the crops, and develop markets for products. Like soybean oil, canola oil is a major source of biomass-based biodiesel feedstock.

The National Renderers Association represents 36 member companies that operate 178 rendering plants across the U.S. and Canada.<sup>8</sup> All combined, these member companies account for 95 percent of the North American rendering

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<sup>5</sup> Id.

<sup>6</sup> Biodiesel, American Soybean Association, <https://soygrowers.com/issues-pages/biodiesel/> (last visited Sept. 11, 2016).

<sup>7</sup> Comments of the U.S. Canola Association (Jul. 27, 2015), EPA-HQ-OAR-2015-0111-1819.

<sup>8</sup> Comments of the National Renderers Association (Jul. 27, 2015), EPA-HQ-OAR-2015-0111-2496.

production.<sup>9</sup> Like soybean oil and canola oil, recycled animal fats and refined cooking oil/grease are a significant feedstock for the production of biomass-based biodiesel. In 2014, renderers contributed approximately 10 billion pounds of recycled animal fats and refined used cooking oil/grease for use as feedstocks for biomass-based diesel, which was equivalent to 34 percent of the market.<sup>10</sup> During the first four months of 2015, renderers supplied almost 26 percent of total biomass-based diesel feedstocks.<sup>11</sup> The National Renderers Association represents its members' interests to regulatory and other governmental agencies, promotes the greater use of animal by-products, and fosters the opening and expansion of trade.<sup>12</sup>

The Canola Council of Canada includes all members of the canola value chain such as seed and input companies, growers, exporters, processors, and biodiesel producers.<sup>13</sup> Members of the Canola Council include companies that

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<sup>9</sup> Id.

<sup>10</sup> Id. In 2015, renderers again contributed approximately 10 billion pounds of recycled animal fats and refined used cooking oil/grease for use as feedstocks for biomass-based diesel, which was equivalent to 34 percent of the market. Comments of the National Renderers Association (Jul. 11, 2016), EPA-HQ-OAR-2016-0004-2694.

<sup>11</sup> Id.

<sup>12</sup> About, National Renderers Association, <http://www.nationalrenderers.org/about/> (last visited Sept. 14, 2016).

<sup>13</sup> Comments of the Canola Council of Canada (Jun. 10, 2015), EPA-HQ-OAR-2015-0111-2484.

own and operate U.S. biodiesel facilities that utilize canola from Canada as a primary feedstock and that have participated in the RFS program and have an economic stake in the implementation of the program.<sup>14</sup> The Canola Council's mission is to enhance the industry's ability to sustainably produce and supply seed, oil, and protein meal products that offer superior value to customers throughout the world.<sup>15</sup>

Arvegenix is developing the pennycress plant as a new feedstock for biomass-based diesel.<sup>16</sup> Pennycress is an off-season and winter crop that allows farmers to continue to generate revenue during months when the fields are usually fallow.<sup>17</sup> Because field pennycress has ideal properties for the use in biomass-based diesel, the company plans for pennycress to develop into a major source feedstock.<sup>18</sup>

Together, *Amici* represent the broad range of feedstocks eligible to produce biomass-based diesel, and have contributed towards operating agricultural and manufacturing facilities and hiring in rural communities. *Amici* believe that advanced biomass-based diesel and a strong RFS program provide multiple energy,

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<sup>14</sup> Id.

<sup>15</sup> Id.

<sup>16</sup> Arvegenix, <http://www.arvegenix.com/> (last visited Sept. 11, 2016).

<sup>17</sup> Id.

<sup>18</sup> Id.

economic, and environmental benefits. *Amici* have an especially strong interest in the development of sound energy policy and economically responsible environmental regulations because, as the feedstock producers, these organizations and their members need to plan strategically and financially to maintain a commercially viable advanced biofuels industry, making the RFS program critical to their business success.

*Amici* are proud of their major role, thus far, in making the advanced biomass-based diesel industry and the RFS program a success story by helping develop advanced biofuel technologies, growing renewable feedstocks, and generally investing in a low-carbon fuel economy. *Amici* are particularly proud of their vocal support for a strong RFS program and their participation in the administrative process.<sup>19</sup>

Thus, *Amici* respectfully submit this brief to explain the consequences to the biomass-based diesel industry, and the Final Rule's impact on their business practices, that would flow from the Court's decision to uphold the EPA's waiver for lowered advanced biofuel volumes under the RFS program.

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<sup>19</sup> Comments of the American Soybean Association (Jul. 24, 2015), EPA-HQ-OAR-2015-0111-1818; Comments of the Canola Council of Canada (Jun. 10, 2015), EPA-HQ-OAR-2015-0111-2484; Comments of the U.S. Canola Association (Jul. 27, 2015), EPA-HQ-OAR-2015-0111-1819; Comments of the National Renderers Association (Jul. 27, 2015), EPA-HQ-OAR-2015-0111-2496.

## SUMMARY OF THE ARGUMENT

EPA reduced statutory volumes for advanced biofuels citing an “inadequate domestic supply.”<sup>20</sup> *Amici* contend that EPA inappropriately exercised its waiver authority since biomass-based diesel has the ability to meet increased supply demands, and is already producing volumes poised to surpass the entire advanced biofuel category. EPA chose to prioritize competition amongst advanced biofuels instead of fulfilling Congress’s intent to further energy security and diversity, increase employment in rural communities, and decrease greenhouse gas emissions. Competition between biomass-based diesel and other biofuel types is artificial. These fuels operate in different engines entirely, and there already is ample competition amongst biomass-based diesel feedstocks (i.e. soybean oil, canola oil, rendering, pennycress) that join together here as *Amici*.

EPA’s Final Rule has removed a key market signal that is credited with facilitating the growth of biomass-based diesel as a successfully commercialized biofuel. Without this signal, the growth and development of new feedstocks and distribution channels will be constrained. The Final Rule presents a missed opportunity for EPA to expand on the benefits of biofuels, and introduces regulatory uncertainty to the diesel transportation fuel market—an obstacle for

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<sup>20</sup> 80 Fed. Reg. at 77,420, 77,426, 77,439 n. 41, 77,442 (Dec. 14, 2015).

market participants trying to engage in business planning and to seek further financing to continue to develop low-carbon diesel.

## ARGUMENT

### **I. The Biomass-Based Diesel Industry Has the Capability to Meet Increased Volume Standards Under the Advanced Biofuel Category**

To reduce the volume standards of the advanced biofuels category, EPA used its waiver authority contending “inadequate domestic supply” of advanced biofuels.<sup>21</sup> Its view of supply, however, includes purported constraints on *consumption* versus the ability of the advanced biofuel industry to contribute to the overall RFS program. *Amici* contend that EPA exercised its waiver authority based upon an inaccurate view of the diesel market as a subset of transportation fuels, including the amount of biomass-based diesel and associated RINs actually available in the U.S., and biomass-based diesel production and domestic distribution capabilities. In so doing, EPA simultaneously constrained the growth of the biomass-based diesel industry by providing an artificial ceiling too low for the market’s growth projections.

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<sup>21</sup> 80 Fed. Reg. at 77,420, 77,435.



**A. EPA Exercised Its Waiver Authority Based upon an Inaccurate View of the Diesel Market as a Subset of Transportation Fuels, Including the Amount of Biomass-Based Diesel Actually Available in the U.S.**

Biomass-based diesel is a defined term in the CAA, and includes mainly two types of non-petroleum diesel fuels, biodiesel<sup>22</sup> and renewable diesel.<sup>23</sup> These fuels are considered “drop-in” fuels in that they could be added to the existing fuel infrastructure with few changes.<sup>24</sup> Biomass-based diesel qualifies as an advanced biofuel under the RFS program.

The statutory volume tables in the CAA for advanced biofuels for calendar years 2014, 2015, and 2016 are respectively 3.75, 5.5 and 7.25 billion gallons.<sup>25</sup> For the first time since the inception of the RFS program, EPA used its waiver authority to significantly reduce the Required Volumes Obligation (“RVO”) in the

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<sup>22</sup> Biodiesel is made from fats and oils, such as soybean oil and canola oil, and rendered animal fats. These feedstocks are converted to fuel by a chemical process known as transesterification. Biodiesel can be used at any level, including B100, but is often blended in amounts up to 20 percent with conventional diesel (denoted as B20), which can be burned in diesel engines without modification. Biodiesel makes up the great majority of biomass-based diesel industry production.

<sup>23</sup> Renewable diesel is made from the same fats and oils as biodiesel. It is transformed into fuel by a process called hydrotreating. Renewable hydrocarbon diesel is chemically similar to conventional diesel and also can be blended in any proportion.

<sup>24</sup> Can “Drop-in” Biofuels Solve Integration Issues? (Fall 2013), NREL, [http://www.nrel.gov/continuum/sustainable\\_transportation/biofuels.html](http://www.nrel.gov/continuum/sustainable_transportation/biofuels.html) (last visited Sept 11, 2016).

<sup>25</sup> 42 U.S.C. § 7545(o)(2)(B)(i)(II).

Final Rule for advanced biofuels for calendar years 2014, 2015, and 2016 to 2.67, 2.88 and 3.61 billion gallons respectively.<sup>26</sup>

The CAA statutory volume tables for biomass-based diesel were not mandated beyond 2012; however, EPA is required to continue setting biomass-based diesel volumes at a level not less than the 2012 volume.<sup>27</sup> The Final Rule's RVOs for biomass-based diesel represent a modest increase from 2013 levels with 1.63 billion gallons for 2014, 1.73 billion gallons for 2015, 1.90 billion gallons for 2016, and 2.0 billion gallons for 2017,<sup>28</sup> as EPA contends that biomass-based diesel should "compete" with other advanced biofuels within its reduced advanced biofuel program. However, these volumes established by EPA are a pronounced setback for the U.S. biomass-based diesel industry.

Domestic use of biodiesel and renewable diesel in 2015 reached 2.1 billion gallons.<sup>29</sup> Use of biodiesel and renewable diesel in the U.S. is projected *by EPA* to reach 2.5 billion gallons this year<sup>30</sup> and 2.7 billion gallons in 2017.<sup>31</sup> These

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<sup>26</sup> 80 Fed. Reg. at 77,432.

<sup>27</sup> 42 U.S.C. § 7545(o)(2)(B)(i)(IV)(ii).

<sup>28</sup> 80 Fed. Reg. at 77,420, 77,422.

<sup>29</sup> Comments of the American Soybean Association, Proposed Rule: Renewable Fuel Standard Program: Standards for 2017 and Biomass-Based Diesel Volume for 2018 (Jul. 11, 2016), EPA-HQ-OAR-2016-0004-1722.

<sup>30</sup> 80 Fed. Reg. at 77,475; see David W. DeRamus and Collin Cain, Biodiesel Distribution in the U.S. and Implications for RFS2 Volume Mandates, Bates White Economic Consulting, 4 (Jul. 2016).

projections only include transportation fuels uses that are eligible to generate RINs within the RFS program, and exclude other RIN generating sources such as biofuels used for home heating oil and jet fuel and generally ignore biomass-based diesel imports.

Concerning the RINs market, the RFS currency that determines whether RVOs are met, biomass-based diesel generates 1.5 RINs per gallon, while renewable diesel generates 1.6 or 1.7 RINs per gallon.<sup>32</sup> In 2013, the biomass-based diesel industry generated 2.7 billion RINs<sup>33</sup>—nearly the entire non-cellulosic advanced biofuels RVO for 2016.<sup>34</sup> Since EPA finalized the challenged volumes, the industry has increased substantially its production by about 30 percent over 2015 levels. EPA's numbers show over 200 million gallons of production for three straight months (May-July, 2015), showing industry can increase production quickly.<sup>35</sup> EPA's registered capacity of the industry is at 2.9 billion gallons<sup>36</sup>

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<sup>31</sup> Renewable Fuel Standard Program: Standards for 2017 and Biomass-Based Diesel Volume for 2018; Proposed Rule, 81 Fed. Reg. 34,778, 34,791, 34,787 (May 31, 2016); DeRamus, Bates White Economic Consulting at 7.

<sup>32</sup> 40 CFR 80.1415(b).

<sup>33</sup> 2013 Renewable Fuel Standard Data, EPA, <https://www.epa.gov/fuels-registration-reporting-and-compliance-help/2013-renewable-fuel-standard-data> (last visited Sept. 11, 2016).

<sup>34</sup> 80 Fed. Reg. at 77432.

<sup>35</sup> 2016 Renewable Fuel Standard Data, EPA, <https://www.epa.gov/fuels-registration-reporting-and-compliance-help/2016-renewable-fuel-standard-data> (last visited Sept. 11, 2016).

(approximately 4.35 billion RINs). However, many in the industry believe that the actual capacity is substantially higher because additional “domestic supply” exists in idled capacity or is not counted since it is consumed in the U.S. Despite these differences, the fact remains that even using EPA’s own data which shows the lowest registered capacity, the biomass-based diesel industry easily has the ability to meet higher advanced biofuel volume standards.

Even considering the most conservative estimates using EPA data,<sup>37</sup> EPA’s RVO for the entire advanced biofuels category is a mere fraction of its own registered capacity, especially considering that biomass-based diesel is not the only qualifying fuel source. Contrary to the assertion in the preamble to the Final Rule, the advanced biofuel reduction was not “only to the extent necessary in light of real world constraints to make the requirements reasonably achievable.”<sup>38</sup> In other words, EPA did not “use the cellulosic waiver authority for advanced biofuel in a manner that allows advanced biofuel to significantly backfill for missing volumes of cellulosic biofuel,”<sup>39</sup> as it had consistently done in the past.<sup>40</sup>

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<sup>36</sup> Registered Biodiesel Production Capacity as of 8-24-15 (Dec. 14, 2015), EPA-HQ-OAR-2015-0111-3579.

<sup>37</sup> 2016 Renewable Fuel Standard Data, EPA <https://www.epa.gov/fuels-registration-reporting-and-compliance-help/2016-renewable-fuel-standard-data> (last visited Sept. 11, 2016).

<sup>38</sup> 80 Fed. Reg. at 77,423.

<sup>39</sup> American Petroleum Inst. v. EPA, 706 F.3d 474, 480 (D.C. Cir. 2013).

**B. EPA Exercised its Waiver Authority Based upon an Inaccurate View of Biomass-Based Diesel Production and Domestic Distribution Capabilities**

In the past, when evaluating domestic supply of advanced biofuels, EPA has stated that to “determine whether to lower this volume, we considered the sources that are expected to satisfy any advanced biofuel mandate including: cellulosic biofuel, biomass-based diesel, other domestically-produced advanced biofuels, and imported sugarcane ethanol.”<sup>41</sup> In 2013, EPA used its cellulosic waiver authority to lower the cellulosic biofuel volume standard, but declined to reduce the volume for the advanced biofuels category.<sup>42</sup> This Court found that it was reasonable to conclude that biomass-based diesel and sugar-cane ethanol could backfill this category without cellulosic biofuels.<sup>43</sup>

Since 2013, the biomass-based diesel industry continues to grow. First, there is ample and diverse feedstock supply for biomass-based diesel to support increasing volumes.<sup>44</sup> “Total global production of RFS qualifying feedstocks is

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<sup>40</sup> Id.

<sup>41</sup> Regulation of Fuels and Fuel Additives: 2013 Renewable Fuel Standards; Final Rule, 78 Fed. Reg. 49,794, 49,797 (Aug. 15, 2013).

<sup>42</sup> Id.

<sup>43</sup> American Petroleum Inst., 706 F.3d at 480.

<sup>44</sup> Comments of the American Soybean Association, Proposed Rule: Renewable Fuel Standard Program: Standards for 2017 and Biomass-Based Diesel Volume for 2018 (Jul. 11, 2016), EPA-HQ-OAR-2016-0004-1722; Comments of the National Biodiesel Board (Jun. 10, 2015), EPA-HQ-OAR-2015-0111-1953; Comments of the Canola Council of Canada (Jun. 10, 2015), EPA-HQ-OAR-2015-0111-2484.

projected to rise from 112 million metric tons in 2014 to 124.1 million metric tons in 2017 and 137.1 million metric tons by 2020 – equivalent to 37 and 41 billion gallons of biodiesel, respectively.”<sup>45</sup> Around one-third of the qualifying vegetable oils and fats are located in the U.S. and Canada.<sup>46</sup> Biomass-based diesel feedstock is not only produced domestically, it should be treated by EPA as a global commodity.<sup>47</sup> For example, although only two of the largest U.S. biomass-based diesel facilities have run, in significant part, on canola oil from Canada, there is greater volume capacity available for import.<sup>48</sup>

In the past 10 years, biomass-based diesel distribution and retail infrastructure have successfully accommodated large increases in domestic biomass-based diesel consumption, with annual increases above 500 million

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<sup>45</sup> LMC International, Current and Future Supply of Biodiesel Feedstocks (Jun. 2015); see Testimony of Andrea Kavalier on behalf of LMC International Ltd., EPA-HQ-OAR-2015-0111-0993 (Jun. 25, 2015).

<sup>46</sup> Id.

<sup>47</sup> “Of the 334 million gallons of biodiesel imported into the United States in 2015, more than half (183 million gallons) were from Argentina. The U.S. Environmental Protection Agency’s January 2015 approval of an RFS pathway for Argentine biodiesel volumes established a streamlined process for Argentina’s biodiesel producers to generate [RIN] credits.” U.S. biodiesel and renewable diesel imports increase 61% in 2015, Energy Information Agency, <http://www.eia.gov/todayinenergy/detail.cfm?id=25752> (last visited Sept. 14, 2016).

<sup>48</sup> Comments of the Canola Council of Canada (Jun. 10, 2015), EPA-HQ-OAR-2015-0111-2484.

gallons in 2011 and 2013.<sup>49</sup> During this period of rapid growth, there has been no indication that limitations in distribution or retail infrastructure were a constraint on biomass-based diesel consumption.<sup>50</sup> Instead, partly due to a lack of market signals from EPA regarding 2014, 2015, and 2016 volumes, there is idled capacity in the market seeking an outlet. For example, regarding distribution, truck stops have invested and have idle blending<sup>51</sup> capacity waiting for EPA to increase its volume standards, and the industry is moving toward more efficient means of production and distribution, including expanding distribution through pipelines.<sup>52</sup>

In the Final Rule, it appears EPA chose to prioritize artificial competition among total renewable fuels to justify the modest increase in biomass-based diesel volumes and reduction in advanced biofuels volumes.<sup>53</sup> However, the statutory volume for advanced biofuels could provide for EPA's desired competition while sending market signals that would allow the biomass-based diesel to continue to grow. Instead, it appears that EPA has made the biomass-based diesel industry beholden to the technological constraints of other fuel sources, such as cellulosic

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<sup>49</sup> DeRamus, Bates White Economic Consulting at 7.

<sup>50</sup> Id.

<sup>51</sup> Id.

<sup>52</sup> Id.

<sup>53</sup> 80 Fed. Reg. at 77,424.

and the E-10 blendwall<sup>54</sup>—industries that do not affect biomass-based diesel outside of the RFS program. Simply stated, biomass-based diesel operates in diesel engines, usually found in, among others, heavy-duty trucks, buses, jets, military vehicles, mining equipment, marine engines, farm equipment, and other off-road vehicles—a distinct market within transportation fuels. Justifying such a severe reduction to the advanced biofuels category based on a finding of “inadequate domestic supply” greatly ignores the market nuance of transportation fuels and their respective markets, and has now stifled the potential of biomass-based diesel.

Thus, the supply potential for biomass-based diesel is far from inadequate—rather, it is poised to burst through the volumetric mandate set by the Final Rule. However, industry now faces the reality that its growth prospects hinge on a ceiling that is too low to encourage further investment in feedstock development and expanded distribution infrastructure channels. The biomass-based diesel industry is seeking consistent increases that are reasonable and achievable in a manner that retains biomass-based diesel market stability, which follows Congress’s intent. The RFS program volume standard is restraining the biomass-based industry that could otherwise supply a greater segment of the market if volumes were increased.

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<sup>54</sup> Id. at 77,423.



## II. EPA Has Removed Market Signals and Regulatory Certainty Required for Biomass-Based Diesel Market Stability and Future Growth

The Energy Independence and Security Act's ("EISA")<sup>55</sup> stated goals include moving the U.S. toward "greater energy independence and security" and "to increase the production of clean renewable fuel."<sup>56</sup> Moreover, "[t]he fundamental objective of the RFS program provisions under the CAA is clear: To increase the use of renewable fuels in the U.S. transportation system every year through at least 2022 in order to reduce greenhouse gas emissions and increase energy security."<sup>57</sup> *Amici* believe Congress intended to establish and cultivate a robust advanced biofuel industry. EPA's stated objective under the RFS program is to "ensure" that transportation fuel contains "at least" the statutory volumes.<sup>58</sup> EPA has consistently recognized these Congressional imperatives in setting its yearly volume standards.

Relying greatly on Congress's and EPA's pronouncements, *Amici* procured considerable investments in infrastructure and advanced the renewable fuels industry forward particularly within the diesel market segment from virtually non-existent to a commercially viable market with competitive products. *Amici*

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<sup>55</sup> Energy Independence and Security Act of 2007, Pub. L. No. 110-140, 121 Stat. 1492 (2007).

<sup>56</sup> *Id.*

<sup>57</sup> 80 Fed. Reg. at 77,421.

<sup>58</sup> 42 U.S.C. § 7545(o)(2)(A); 80 Fed. Reg. at 77,424.

invested in technology and production capabilities that brought biodiesel and renewable diesel from less than one million gallons produced in 2005<sup>59</sup> to more than 2.1 billion gallons produced in 2015,<sup>60</sup> fulfilling EPA's vision that "[t]he RFS program can be thought of as a market forcing policy."<sup>61</sup> Biomass-based diesel is now a critical part of several industries (e.g., soybean oil, canola oil, rendered animal fats, pennycress oil, refined cooking oil/grease, and algae), which are concerned that EPA's Final Rule may cause an unfavorable market response.

Congress provided the necessary stability and certainty for sustained biofuel growth in the Clean Air Act itself. Section 211(o)(2)(B) of the Clean Air Act, 42 U.S.C. § 7545(o)(2)(B), established the statutory volumes for total renewable fuel usage for the years 2006-2022, and within the renewable fuel category, it also set volumes for advanced biofuel for the same period. Prior to the Final Rule, EPA always had followed these tables in setting the applicable volume standards. From 2005-2012, the biomass-based diesel industry, including *Amici* and their investment partners, relied upon the clear and unequivocal volumes chart for advanced biofuels in CAA section 211(o)(2)(B)(i), 42 U.S.C. § 7545(o)(2)(B)(i).

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<sup>59</sup> Comments of the American Soybean Association, Proposed Rule: Renewable Fuel Standard Program: Standards for 2017 and Biomass-Based Diesel Volume for 2018 (Jul. 11, 2016), EPA-HQ-OAR-2016-0004-1722.

<sup>60</sup> 2016 Renewable Fuel Standard data, EPA, <https://www.epa.gov/fuels-registration-reporting-and-compliance-help/2016-renewable-fuel-standard-data> (last visited Sept. 11, 2016); 80 Fed. Reg. at 77,423.

<sup>61</sup> 80 Fed. Reg. at 77,423.

Although EPA's mandate is to set fuel volumes for each year and the Agency could utilize its waiver authorities under certain circumstances, the stability presented by the RFS program tables helped to facilitate the dramatic growth of the biomass-based diesel category.

Industry growth and investment rely on the stability provided by the RFS program. All of the positive economic advances are in jeopardy if the Final Rule is permitted to remove the policy and regulatory consistency necessary for the continued growth of the young advanced biofuels industry. Far from "ensuring" volumes, *Amici* now lack positive RFS program market signals upon which to rely for future investment. "A changing, varied and uncertain regulatory environment adds risk and may delay investments in advanced biofuels infrastructure by producers, shippers, distributors, and users of biofuels."<sup>62</sup>

The Final Rule volumes in the advanced biofuel category are simply not sufficient to stabilize the market and drive significant further investment in biomass-based diesel. Rather, the Final Rule volumes create a disincentive and are a missed opportunity for capitalizing on biomass-based diesel benefits, including job creation, emissions reductions, and improvements to the nation's energy

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<sup>62</sup> Frank Rusco, Biofuels Infrastructure in the United States: Current Status and Future Challenges, (Nov. 30, 2012) available at <http://www.oecd.org/futures/Biofuels%20Infrastructure%20in%20the%20United%20States%20Current%20Status%20and%20Future%20Challenges.pdf>.

security. The small increases in volume proposed by the biomass-based diesel industry are minimal in the context of the overall fuels marketplace and are undetectable compared to the volumes of feedstock markets and the petroleum industry, but would benefit the industry, the environment, the economy, and energy security tremendously.

When Congress and EPA have provided positive signals and regulatory certainty, the biomass-based diesel industry has supported vast increases in the production volume standards. EPA has consistently acknowledged this fact.<sup>63</sup> Accordingly, for *Amici*, correcting volume standards under the Final Rule is a vitally important signal to expand the biomass-based diesel market because the market responds to EPA's notices.<sup>64</sup>

**Markets Respond to Regulatory Certainty:** With respect to soybeans, the most prevalent U.S. feedstock, biomass-based diesel production is an increasingly important component of the demand for soybean producers. Soybean demand is driven by the demand for soybean protein, and soybean oil is a co-product that can serve as a food product or a feedstock for biomass-based diesel. Without a market

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<sup>63</sup> 75 Fed. Reg. 76,790, 76,802 (Dec. 9, 2010); 76 Fed. Reg. 38,844, 38,856 (Jul. 1, 2011); 77 Fed. Reg. 1320, 1334 (Jan. 9, 2012); 77 Fed. Reg. 59,458, 59,461 (Sept. 27, 2012).

<sup>64</sup> 80 Fed. Reg. at 77,426.

outlet for the co-product, production of the protein meal is restrained. Biomass-based diesel provides a market outlet for the surplus soybean oil.

However, a recent U.S. Food and Drug Administration determination requiring the elimination of all partially hydrogenated oils (trans-fat) by 2018, likely will displace a large quantity of soybean oil from the market.<sup>65</sup> Since the trans-fat labeling requirements were announced in 2003, over 3 billion pounds of soybean oil have been displaced in the food market, showcasing the strong response of the market to regulation.<sup>66</sup> Thus, soybean oil feedstocks must rely more critically on biomass-based diesel, and there is concern that industry too will respond similarly to EPA's Final Rule.<sup>67</sup>

**Unclear Market Signals Hinder Investment:** Regulatory certainty and clear market signals from EPA will increase investment in the industry. Investments in demonstration and deployment of biomass-to-biofuels conversion technologies have a positive effect on the development of the advanced biofuels industry. Furthermore, supportive regulatory policies, among other conditions,

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<sup>65</sup> Comments of the American Soybean Association, Proposed Rule: Renewable Fuel Standard Program: Standards for 2017 and Biomass-Based Diesel Volume for 2018 (Jul. 11, 2016), EPA-HQ-OAR-2016-0004-1722.

<sup>66</sup> Monroe Energy v. EPA, 750 F.3d 909, 918 (D.C. Cir. 2014); Comments of the American Soybean Association (Jul. 24, 2015), EPA-HQ-OAR-2015-0111-1818.

<sup>67</sup> Comments of the American Soybean Association (Jul. 24, 2015), EPA-HQ-OAR-2015-0111-1818.

have major impacts on the effectiveness of such investments.<sup>68</sup> However, investment is entirely dependent upon return—and returns are less clear in an uncertain regulatory environment as a result of the Final Rule.

For example, the ongoing development of the pennycress crop<sup>69</sup> has relied on the advanced biofuels category, where volumes are prescribed until 2022 and biomass-based diesel is a qualifying fuel.<sup>70</sup> The development of a crop feedstock is a challenging task that involves genomic development, plant breeding, yield tests, repeated crop cycling, obtaining necessary regulatory approvals, developing relationships with local farmers, and creating sales and distribution channels. To maintain the RFS as a market forcing policy, the stability and reliability of the program is integral to the further development of the next generation of low-carbon biofuels.

### **III. Increased Advanced Biofuels Volumes and a Healthy Biomass-Based Diesel Industry Fulfills Congress's Intent under the RFS Program**

As stated goals, Congress sought “[t]o move the United States toward greater energy independence and security” by “increasing the production of clean renewable fuels . . . increas[ing] the efficiency of products . . . [for] vehicles,”

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<sup>68</sup> Laura J. Vimmerstedt & Brian W. Bush, Effects of Deployment Investment on the Growth of the Biofuels Industry, NREL (Dec. 2013) available at <http://www.nrel.gov/docs/fy14osti/60802.pdf>.

<sup>69</sup> Arvegenix, <http://www.arvegenix.com/> (last visited Sept. 11, 2016).

<sup>70</sup> 42 U.S.C. § 7545(o)(2)(B)(i).

including decreasing the carbon footprint of these fuels.<sup>71</sup> To this end, the RFS program was intended to promote fuel source diversity (as discussed in Section IV of this brief), reduce dependence on imported fossil fuels, and achieve environmental benefits in air quality and reduce greenhouse gas emissions. By using its waiver authority to decrease the advanced biofuel category, EPA is missing an opportunity to further these goals.

**Greenhouse Gas Emissions Reduction Benefits:** *Amici* have furthered the intent of Congress and the RFS program by reducing greenhouse gas emissions in the energy supply chain. According to EPA's own assessment, biomass-based diesel reduces lifecycle greenhouse gas emissions by 57-86 percent when compared to conventional diesel.<sup>72</sup> *Amici* argue that this is a conservative estimate,<sup>73</sup> but even so, these reductions are significant, especially considering that the transportation sector is the second largest source of CO<sub>2</sub> emissions (approximately 28 percent) in the U.S., slightly behind the electricity sector

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<sup>71</sup> Energy Independence and Security Act of 2007, Pub. L. No. 110-140, 121 Stat. 1492 (2007).

<sup>72</sup> Regulation of Fuels and Fuel Additives: Changes to Renewable Fuel Standard Program; Final Rule, 75 Fed. Reg. 14,670, 14,789 (Mar. 26, 2010); see Comments of the American Soybean Association (Jul. 24, 2015), EPA-HQ-OAR-2015-0111-1818; Comments of the U.S. Canola Association (Jul. 27, 2015), EPA-HQ-OAR-2015-0111-1819.

<sup>73</sup> "Biodiesel is an exceptionally effective means of reducing CO<sub>2</sub> emissions, with 81% lower net CO<sub>2</sub> emissions than petroleum diesel, based on current feedstocks." DeRamus, Bates White Economic Consulting at 22.

(approximately 32 percent).<sup>74</sup> In particular, biomass-based diesel has reduced CO<sub>2</sub> emissions by millions of metric tons since 2004 (i.e., this is equivalent to removing millions of vehicles from the road).<sup>75</sup>

The RFS program has emerged as an important policy tool to achieve greenhouse gas emissions reductions and to help the U.S. reach its climate change goals. Substituting higher amounts of biomass-based diesel for traditional diesel is a simple, effective way to immediately reduce diesel emissions, and contribute to reducing climate change impacts – a high priority for EPA and this Administration. Thus, it is difficult for *Amici* to understand why the biomass-based diesel industry and EPA are not allies and why EPA is reluctant to embrace more aggressive advanced biofuel, and thereby biomass-based diesel volumes.

Additionally, the RFS program, and biomass-based diesel as a component thereof, is an essential tool for the U.S. to meet commitments to reduce CO<sub>2</sub> emissions under the United Nations Framework Convention on Climate Change, more commonly referred to as the UNFCCC (the current Administration has

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<sup>74</sup> Sources of Greenhouse Gas Emissions, EPA, <https://www.epa.gov/ghgemissions/sources-greenhouse-gas-emissions> (last visited Sept. 12, 2016); The President's Climate Action Plan, Executive Office of the President (2013) available at <https://www.whitehouse.gov/sites/default/files/image/president27sclimateactionplan.pdf>.

<sup>75</sup> See, e.g., A. Pradhan, et. al., Reassessment of Life Cycle Greenhouse Gas Emissions for Soybean Biodiesel, American Society of Agricultural and Biological Engineers (2012).



committed to reduce greenhouse gas emissions by 26-28 percent by 2025).<sup>76</sup>

Alone, the transportation sector contributes 28 percent of CO<sub>2</sub> emissions. Using federal emissions reductions estimates for biomass-based diesel, the Administration can achieve nearly one-fifth of its 26-28 percent goal in the transportation sector share solely by conservatively increasing the annual biomass-based diesel volume requirements.<sup>77</sup>

**Mitigation of Climate Change Impacts:** *Amici* are in a unique position in that they are exposed to the same staggering economic and business risks caused by climate change as other businesses, and also are part of the solution. They are producers and renderers of feedstocks that are used to synthesize advanced biofuels, which when substituted for fossil fuels help reduce greenhouse gas emissions and the impacts of climate change. And without more regulatory and policy clarity, *Amici* will face the same future damage to corporate property and infrastructure stemming from rising sea levels and increased intense weather events.

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<sup>76</sup> United Nations Framework Convention on Climate Change, Twenty-First Conference of the Parties, available at <https://unfccc.int/resource/docs/2015/cop21/eng/109.pdf>.

<sup>77</sup> See U.S. Reports its 2025 Emissions Target to the UNFCCC, White House Press Release (Mar. 31, 2015), available at <https://www.whitehouse.gov/the-press-office/2015/03/31/fact-sheet-us-reports-its-2025-emissions-target-unfccc>.

*Amici* also will encounter climate-driven impacts to supply chains and agricultural production as well as unreliable energy supply, decreased labor productivity, and threats to public health.<sup>78</sup> Climate change impacts are not just a business risk for the advanced biofuel industry and its supply chain, but a grave issue for our nation and our world. As the demand for diesel fuel is expected to rise, the advanced biomass-based diesel industry can continue to further Congress's and the current Administration's goals of reducing greenhouse gas emissions and mitigating the impact of climate change.

**Public Health Benefits:** Directly related to reducing greenhouse gas emissions, the RFS program also contributes to protecting public health, improved water quality, and protecting endangered species habitats, just to name a few environmental benefits. Use of biomass-based diesel also reduces emissions of other pollutants, such as particulate matter, carbon monoxide, and unburned hydrocarbons when compared to petroleum diesel.<sup>79</sup> In 2013, the U.S. biomass-

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<sup>78</sup> Bloomberg, Paulson, & Steyer, Risky Business: The Economic Risks of Climate Change in the United States, The Risky Business Project (2014) available at [http://passthrough.fw-notify.net/download/732036/http://riskybusiness.org/site/assets/uploads/2015/09/RiskyBusiness\\_Report\\_WEB\\_09\\_08\\_14.pdf](http://passthrough.fw-notify.net/download/732036/http://riskybusiness.org/site/assets/uploads/2015/09/RiskyBusiness_Report_WEB_09_08_14.pdf).

<sup>79</sup> Public Comments of National Renderers Association (Jul. 11, 2016), EPA-HQ-OAR-2016-0004-2694; see Emissions Benefits of Biodiesel and the Renewable Fuel Standard, NBB Comments (Attachment 7) (Jul. 27, 2015), EPA-HQ-OAR-2015-0111-1953.

based diesel industry decreased particulate matter emissions by more than 4,500 tons.<sup>80</sup>

EPA has identified numerous health benefits of reducing particulate matter, including less adult and infant mortality, fewer cases of chronic and acute bronchitis, reduced acute myocardial infarctions, lowered cardiovascular hospital admissions, reduced upper and lower respiratory symptoms, less exacerbation of asthma, and fewer lost work days.<sup>81</sup> A stronger RFS program, as *amici* propose, will contribute significantly to improved public health.

**Economic Benefits:** In addition to environmental and public health benefits, the RFS program also has provided direct economic benefits, especially in rural communities. Today, the biomass-based diesel industry touches almost every state, and supports close to \$17 billion in total economic activity.<sup>82</sup> *Amici* and the biomass-based diesel industry have created American jobs. For example, a recent study conducted by LMC International found that the U.S. biomass-based diesel industry supported nearly 48,000 jobs nationwide in 2015, particularly in rural areas, while supporting \$8.4 billion in economic impact across a variety of sectors, from manufacturing to transportation, agriculture, and service industries, with \$1.9

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<sup>80</sup> Id.

<sup>81</sup> Id.

<sup>82</sup> Comments of the U.S. Canola Association (Jul. 27, 2015), EPA-HQ-OAR-2015-0111-1819.

billion in wages paid.<sup>83</sup> Expanded production leads to additional positive economic impacts, including jobs, higher wages, and increased local tax revenue, of particular need in rural communities.

#### **IV. Biomass-Based Diesel is a Distinct Market within the Advanced Biofuels Category that Furthers Congress's Goal of Fuel Diversity, the Growth of which is Constrained by the Final Rule**

One of Congress's primary goals in the RFS program was to diversify fuel supply, thus increasing the nation's energy security. This was to be accomplished by reducing the nation's dependence on imported fossil fuels and ensuring the accessibility of a wide variety of fuel alternatives in case a particular fuel suddenly became unavailable. In this endeavor, the biomass-based diesel industry has been a success.

Most of the heavy-duty trucks, buses, jets, military vehicles, mining equipment, marine engines, farm equipment, and other off-road vehicles in the U.S. use diesel fuel, and these engines are capable of using biomass-based diesel to reduce fossil fuel related pollution. Vehicles that operate on diesel fuel can incorporate biomass-based diesel without making changes to the engine.<sup>84</sup> Since every long-distance trucking company is dependent on retail fuel chains to service

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<sup>83</sup> LMC International, The Economic Impact of the Biodiesel Industry on the U.S. Economy, (Jun. 2016), available at [http://biodiesel.org/docs/default-source/policy--federal/lmc-study-for-nbb\\_economic-impact-of-biodiesel\\_june-2016-final.pdf?sfvrsn=4](http://biodiesel.org/docs/default-source/policy--federal/lmc-study-for-nbb_economic-impact-of-biodiesel_june-2016-final.pdf?sfvrsn=4).

<sup>84</sup> DeRamus, Bates White Economic Consulting at 4.

their fleet, “it is reasonable to conclude that all of the large fleets are currently using a significant amount of B10 - B20 in their regular course of operations”<sup>85</sup> — likely without disrupting operation.

Given the nature of the transportation fuels market, outside of the RFS program and the advanced fuel category, biomass-based diesel is not a natural competitor of petroleum-derived gasoline, including ethanol. EPA should focus on ensuring that advanced biofuels can compete with *petroleum* not with other fuels in the biofuels category. The lack of other technology in the advanced biofuels category does not indicate the lack of competition within this category; the umbrella of biomass-based diesel is broad and does not represent one feedstock or even one type of feedstock.

Feedstocks that can generate qualifying biomass-based diesel are typically made from soybean, canola, or other vegetable oils, animal fats, and recycled oils and grease. But, new feedstocks continue to be investigated and improved. *Amici* represent the variety of feedstocks used in the synthesis of biomass-based diesel, and in other instances outside of the RFS program would be natural competitors to one another and petroleum-derived diesel for market share. Within an expanded

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<sup>85</sup> Id.

advanced biofuels category, biomass-based diesel would compete directly with petroleum based diesel.<sup>86</sup>

Thus, biomass-based diesel accomplishes Congress's charge, including its charge to increase use of biofuels in the diesel market, which is estimated to keep growing. EPA, in lowering the advanced fuel volume has forced fuels that do not naturally compete to now become artificial competitors within the RFS, inhibiting *Amici's* ability to continue to grow the low-carbon diesel sector.

### CONCLUSION

For the foregoing reasons, *Amici* believe that volume standards above those proposed by EPA are warranted and reasonable.

Dated: September 15, 2016

Respectfully submitted,

/s/ Jerome C. Muys, Jr.

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<sup>86</sup> 80 Fed. Reg. at 77,424.

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### **CERTIFICATE OF COMPLIANCE**

This brief complies with Federal Rule of Appellate Procedure 29(c)(7) and 32(a)(7)(C) because it meets the prescribed type-volume limitation of Fed. R. App. P. 29(d) and contains 6,442 words, exclusive of the parts of the brief exempted by Fed. R. App. P. 32(a)(7)(B)(iii). This brief also complies with the typeface requirements of Fed. R. App. P. 32(a)(5) and the type-style requirements of Fed. R. App. P. 32(a)(6) because it has been prepared using Microsoft Office Word 2010 in 14-point Times New Roman, a proportionally spaced typeface.

Dated: September 15, 2016

Respectfully submitted,

/s/ Jerome C. Muys, Jr.

Jerome C. Muys, Jr.



**CERTIFICATE REGARDING SEPARATE BRIEFING**

Pursuant to D.C. Circuit Rule 29(d), *amici curiae* certify that a separate brief is necessary because no other *amicus* brief of which we are aware will address the issues raised in this brief: namely that as the participants most invested in the biomass-based diesel industry, and specifically affected by the Final Rule, it is essential that *amici curiae* explain the consequences to the industry and the Final Rule's impact on their business practices that would flow from the Court's decision to uphold EPA's waiver for lowered advanced biofuel volumes under the RFS program. In light of *amici curiae*'s position, as discussed more fully herein, *amici* are uniquely positioned to discuss the issues implicated by this case.

Dated: September 15, 2016

Respectfully submitted,

/s/ Jerome C. Muys, Jr.

Jerome C. Muys, Jr.

**CERTIFICATE FEDERAL RULE OF APPELLATE PROCEDURE 29(C)**

Pursuant to Federal Rule of Appellate Procedure 29(c)(5), *amici curiae* state that no counsel for a party authored the brief in whole or in part, and no party or counsel for a party contributed money that was intended to fund the preparation or submission of this brief. Biox USA Limited, Lake Erie Biofuels (DBA HERO BX), Musket Corporation, RBF Port Neches LLC, and World Management Group, LLC contributed money that was intended to fund preparing and/or submitting this brief. The positions set forth in this brief are not necessarily those of these entities.

Dated: September 15, 2016

Respectfully submitted,

/s/ Jerome C. Muys, Jr.

Jerome C. Muys, Jr.

**CERTIFICATE OF SERVICE**

I certify that on September 15, 2016, I electronically filed the foregoing document with the Clerk of Court for the United States Court of Appeals for the District of Columbia Circuit using the Court's CM/ECF system for service on all registered counsel of record in Case No. 16-1005, and consolidated cases.

Dated: September 15, 2016

/s/ Jerome C. Muys, Jr.

Jerome C. Muys, Jr.

Message

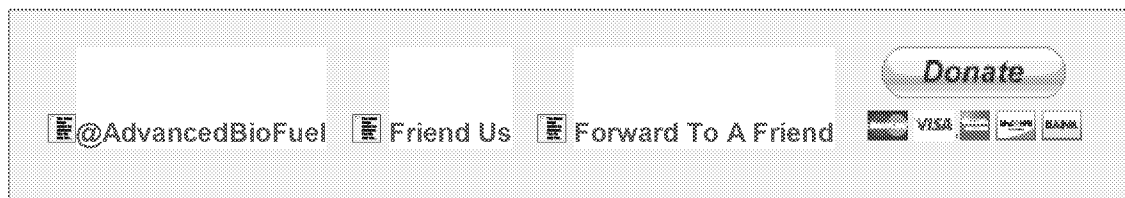
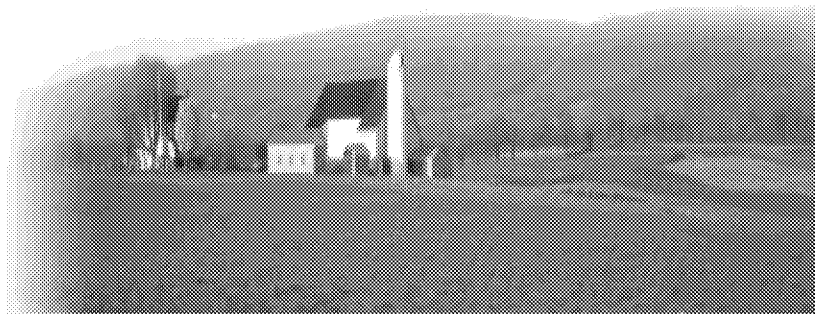
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**From:** Joanne Ivancic Advanced Biofuels USA [info=advancedbiofuelsusa.org@mail51.atl161.mcsv.net]  
on behalf of Joanne Ivancic Advanced Biofuels USA [info@advancedbiofuelsusa.org]  
**Sent:** 7/19/2016 2:32:11 PM  
**To:** Argyropoulos, Paul [/o=ExchangeLabs/ou=Exchange Administrative Group  
(FYDIBOHF23SPDLT)/cn=Recipients/cn=0149b93d2780437a9c2b6d8477df7991-pargyrop]  
**Subject:** Federal Legislation, Regulation, Litigation; Educational Resources; Advanced Biofuels Original Writing, NEWS -- July 2016

Federal legislation, regulation, litigation. Policy. Scholarships and Competitions. Plus Educational Resources. And Advanced Biofuels USA activities.

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*Advanced Biofuels USA, a nonprofit educational organization, advocates for the adoption of advanced biofuels as an energy security, economic development, military flexibility and climate change solution.*





Lift your face to the sun and shine. The purpose of the life of a sunflower-- beauty, animal feed, biofuel feedstock, provider of pollen, gathering CO<sub>2</sub>, releasing oxygen, object of serene contemplation.

**Reminder - Advanced Biofuels USA Split Newsletter into Two Parts: *Conference Calendar*, which is sent separately; and *Policy, Legislation, Regulations and Happenings*--this one.** All can be found archived on our [NEWS](#) page.

## **Happenings on Capitol Hill, at the White House and in Federal Agencies**

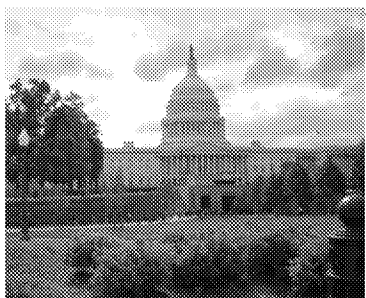
**New Tags: 2016 US Presidential Campaign and 2016 US House and Senate Campaigns**

## ELECTION 2016

*During the Presidential and Congressional campaign season, Advanced Biofuels USA is following comments by candidates to help **you** make sustainable renewable transportation fuels part of the 2016 campaign conversation. Click on these tags to keep in touch with the latest: [2016 US Presidential Campaign](#) and [2016 US House and Senate Campaigns](#). To find tags on [our website](#), just scroll down to the bottom of the right margin.*

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### Latest Federal Legislation Posts



We follow proposed and actual federal legislation. Here are some key stories as we head to the final laps of this legislative session.

Key issues? [Tax credits](#), [oil subsidies](#), [Renewable Fuel Standard](#), and attempts to limit [military use of biofuels](#).

For more legislative news, [click here](#).

We also follow [policy developments](#) in the US, other countries and states. For more information on those topics, click on the name of the country or state that appears along the right margin of our website at [www.AdvancedBiofuelsUSA.org](http://www.AdvancedBiofuelsUSA.org).

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#### **40-Plus Groups Call on Congress to End Tax Breaks for Big Oil**

July 17, 2016 – 7:08 pm |

by Ron Kotrba (Biomass Magazine) More than 40 national organizations have called on Congress to end more than a century of tax breaks for the oil industry. In a letter to U.S. legislators, a diverse ...

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#### **Bill Intro'd in Senate to Reform, Extend Tax Credit through 2019**

July 15, 2016 – 5:54 pm |

by Ron Kotrba (Biodiesel Magazine) A bill was introduced in the U.S. Senate to extend the \$1-per-gallon biodiesel tax credit through 2019 and restructure the incentive from a blenders credit to a domestic production credit. ...

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#### **Renewable Biofuels Are Vital to an All-of-the-Above Energy Strategy**

July 1, 2016 – 4:52 pm |

by William Feehery (The Hill/DuPont Industrial Biosciences) ... One of the most vital and immediate tools at our disposal in the campaign for energy independence is renewable fuel. It is the only technology that can ...

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#### **LaHood: Raise the Gas Tax or America's 'One Big Pothole'**

June 30, 2016 – 11:21 am |

by Alex Guillén (Politico Pro) Lawmakers must raise the gas tax and index it to inflation, or "America's going to continue to be one big pothole," former Transportation Secretary Ray LaHood said today, using one ...

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#### **RFS Hearing Finds New Issues to Dig into**

June 27, 2016 – 7:46 pm |

by Spencer Chase (Agri-Pulse) ... When it comes to land use, Colin O'Mara, president and CEO of the National Wildlife Federation, testified that a University of Wisconsin study had shown that 7.3 million acres of land had ...

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### **Proposed Bill Expands Tax Credit to Biogas-Based RNG**

**June 27, 2016 – 7:19 pm |**

by Anna Simet (Biomass Magazine) A bill (H.R. 5489) recently introduced to the House Ways and Means Committee on Space, Science and Technology would add more biogas applications to the list of technologies that qualify for ...

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### **Industry CEO Asks Senate to Extend Tax Credits for Biogas**

**June 22, 2016 – 6:18 pm |**

by Cole Rosengren (Waste Dive) Steve Miller, CEO of Oregon-based Bulk Handling Systems, testified in favor of more tax credits for biogas at a U.S. Senate Finance Committee hearing last week. Miller advised a five-year energy ...

---

### **NBB to Congress: Biodiesel Is Advanced Biofuel Success Story**

**June 22, 2016 – 11:22 am |**

(National Biodiesel Board) Biodiesel is delivering the vast majority of Advanced Biofuel under the Renewable Fuel Standard and is poised for continued growth with strong policy, National Biodiesel Board Vice President of Federal Affairs Anne ...

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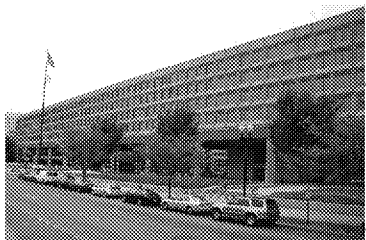
### **NFU Urges Military Biofuels Exemption to Be Removed from Defense Spending Bill**

**June 21, 2016 – 2:43 pm |**

(National Farmers Union) Repeated attempts to undermine the national security benefits of advanced biofuels through previous defense spending bills have been unsuccessful. As House lawmakers meet today to debate the Department of Defense Appropriations Act ...



## Latest Federal Regulation Posts



This month features the just-released draft Technical Assessment Report for the mid-term evaluation of the U.S. national program for greenhouse gas emissions and fuel economy standards for light duty cars and truck.

The other hot regulatory topics continue to be the RVO (renewable volume obligation) and calls for 'obligated party' reform.

The value of ethanol's octane and its ability to replace carcinogenic aromatics also get attention in this month's online articles. Sulfur, animal feed/food safety, TSCA and biogenic emissions also claim brain space.

Scroll down for information about regulations related to these topics and others among our latest postings. Others you'll find in the Federal Regulations category online.

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### US EPA, US DOT, California's Air Resources Board Issue Draft Technical Assessment Report of Greenhouse Gas Emissions and Fuel Economy Standards for Model Year 2022-2025 Cars and Light Trucks

July 18, 2016 – 4:03 pm |

(U.S. Department of Transportation) The U.S. Department of Transportation (DOT), the U.S. Environmental Protection Agency (EPA), and the California Air Resource Board (CARB) today took the first step in the mid-term evaluation of the National ...

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### Sulfur Compounded in Ethanol Regulations

July 18, 2016 – 12:21 pm |

by Susanne Retka Schill (Ethanol Producer Magazine) As the Tier 3 deadline approaches, it's important to understand the difference between EPA and ASTM treatments of the element. — The U.S. EPA's Tier 3 rules are ...

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### **Repeat After Me: High Octane, Low Carbon**

July 18, 2016 – 11:14 am |

by David VanderGriend (Urban Air Initiative/ICM/Governors' Biofuel Coalition) The signs are everywhere highlighting our product and how it can find its true value as an octane enhancer while lowering carbon emissions.

Using our research at the Urban Air ...

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### **5 Signs Your Current Good Manufacturing Processes Are Ready for the Food Safety Modernization Act**

July 18, 2016 – 11:04 am |

by Phil Cleary (Christianson & Associates/Biofuels Digest) The Food Safety Modernization Act covers the operation of a facility that manufactures, processes, packs, or holds animal food for sale in the United States.

Renewable fuels facilities producing feed ...

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### **DOE Issues Update to Its Loan Guarantee Programs**

July 15, 2016 – 7:39 pm |

by Jim Lane (Biofuels Digest) The Loan Program Office of the U.S. Department of Energy recently introduced a number of important updates to the Loan Guarantee Solicitation for Applications for Renewable Energy and Energy Efficiency ...

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### **RFA to EPA: Raise the Conventional Renewable Fuel 2017 RFS RVO to Statutory Requirement**

July 15, 2016 – 5:48 pm |

(Renewable Fuels Association) The Renewable Fuels Association (RFA) submitted comments today to EPA on its proposed 2017 Renewable Fuel

Standard renewable volume obligations (RVO), urging the agency to raise the requirement for conventional renewable fuel ...

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### **17 House Biofuels Caucus Members Urge EPA to Finalize Strong RFS**

**July 15, 2016 – 3:57 pm |**

(Renewable Fuels Association) Today, 17 members of the House Biofuels Caucus sent a letter to EPA Administrator Gina McCarthy, urging the agency to complete its 2017 Renewable Fuel Standard (RFS) “in a manner consistent with ...

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### **2022: A Cliff for Clean Fuels and the RFS?**

**July 8, 2016 – 6:08 pm |**

by David Cox (Biomass Magazine/Renewable Natural Gas Coalition) ... It says that “for calendar years after the calendar years specified in the tables,” (i.e., after 2022), the EPA administrator will set applicable volumes using specified criteria, which ...

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### **A Simple Regulatory Solution for Biogenic Emissions**

**July 8, 2016 – 6:01 pm |**

by Bob Cleaves (Biomass Magazine/Biomass Power Association) ... Also at the top of the list is how the plan will eventually treat biomass. For us, there is a very simple solution: If fuel is derived from ...

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### **Renewable Fuel Standard Helps Keep Summer Fuel Prices Low**

**July 6, 2016 – 1:16 pm |**

(Convenience Store Decisions) High-octane ethanol gasoline blends are helping American's to enjoy low fuel prices this summer. The Renewable Fuel Standard (RFS) is proving to be beneficial to Americans in more ways than just providing a ...

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### **No Surprise: RFS Missing Its Target**

July 6, 2016 – 1:12 pm |

by Howard Gruenspecht (U.S. Department of Energy Energy Information Administration/Iowa Farmer Today) ... Substantially increased use of biofuels can only occur if they can be used in forms other than low-percentage blends of ethanol and biodiesel that ...

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### **How Detroit Is Dealing With Cleaner Car Standards**

July 5, 2016 – 10:39 am |

by John Lippert (Bloomberg/IndustryWeek) Fuel economy standards will increase a projected 53% to 54.5 miles per gallon within the next decade, and tailpipe emissions will need to fall. What does Detroit think about the pending ...

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### **Bergeson & Campbell, P.C. Launches TSCAblog.com to Provide News and Analysis on TSCA Reform Implementation and Related Legal and Policy Developments**

July 3, 2016 – 1:12 pm |

(Bergeson & Campbell) Bergeson & Campbell, P.C. (B&C®) announced today the launch of the Toxic Substances Control Act (TSCA) Blog (TSCAblog™) to track and report regulatory, scientific, legal, and policy developments under the “new TSCA.” ...

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### **Renewable Biofuels Are Vital to an All-of-the-Above Energy Strategy**

July 1, 2016 – 4:52 pm |

by William Feehery (The Hill/DuPont Industrial Biosciences) ... One of the most vital and immediate tools at our disposal in the campaign for energy independence is renewable fuel. It is the only technology that can ...

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### **LaHood: Stick with Final 54.5 mpg Standards**

June 30, 2016 – 11:27 am |

by Alex Guillén (Político Pro) Former Transportation Secretary Ray LaHood is optimistic that auto manufacturers can meet the Obama administration's goal of lifting the nation's fuel economy standard to 54.5 miles per gallon by 2025.

"I ...

---

### **TSCA Reform: EPA Publishes First Year Implementation Plan**

**June 30, 2016 – 10:38 am |**

(Bergeson & Campbell) On June 29, 2016, the U.S. Environmental Protection Agency (EPA) posted an Implementation Plan that outlines EPA's plans for early activities and actions under the Frank R. Lautenberg Chemical Safety for the 21st ...

---

### **US Biofuels Supporters Push Back against MOVES Model**

**June 27, 2016 – 7:59 pm |**

by Josh Pedrick (Platts) ... "We should have included T70 as a metric in the model, it entirely changes the perception of the model," said Shon Van Hulzen, director of quality control at US ethanol producer ...

---

### **RFS Hearing Finds New Issues to Dig into**

**June 27, 2016 – 7:46 pm | No Comment**

by Spencer Chase (Agri-Pulse) ... When it comes to land use, Colin O'Mara, president and CEO of the National Wildlife Federation, testified that a University of Wisconsin study had shown that 7.3 million acres of land had ...

---

### **Big Soy Crop No Help for U.S. Biofuel Makers Overrun by Imports**

**June 27, 2016 – 7:37 pm |**

by Mario Parker (Bloomberg) Biodiesel plants idled as shipments from Asia, Argentina jump; Foreign supplies cheaper or cleaner than fuel from Midwest soy — Makers of renewable fuels derived from the vast soybean fields across the ...

---

### **House Hearing Focuses on RFS Implementation**

**June 27, 2016 – 7:09 pm |**

by Erin Voegele (Ethanol Producer Magazine) On June 22, the House Energy and Commerce Committee's Energy and Power Subcommittee held a hearing on the renewable fuel standard (RFS). The event featured testimony from government officials, ...

---

### **Letter: Don't Believe Scare Tactics against Vehicular Use of Ethanol**

**June 27, 2016 – 6:44 pm | [No Comment](#)**

by Robert Miller (TC Palm) ... The oil industry doesn't want ethanol to go away, but it doesn't want to give up any more market. It needs the low-cost oxygenate as refineries have been retooled to run ...

---

### **Exxon, ConocoPhillips Top List of Methane Polluters**

**June 27, 2016 – 5:06 pm |**

by Katie Fehrenbacher (Fortune Magazine) This is how much methane pollution that eleven oil and gas companies emit annually. Eleven oil and gas giants in the U.S. leak so much of a potent green house gas into ...

---

### **Dozens of Senators Push EPA for Higher Ethanol Mandate**

**June 27, 2016 – 1:25 pm |**

by Devin Henry (The Hill) A bipartisan group of senators on Friday chided federal regulators for pulling back on the federal ethanol mandate.

In a letter to Environmental Protection Agency (EPA) Administrator Gina McCarthy, the 39 ...

---

### **Renewable Diesel Proves Viable for Construction Trucks and Equipment**

**June 23, 2016 – 2:05 pm |**

(Gas & Electricity) By now, most are familiar with biodiesel. It is a cost-effective

and more environmentally friendly alternative to conventional petroleum-based diesel fuels when used in the correct applications.

...

However, there are limitations when compared ...

---

### **'Threat Map' Aims to Highlight the Worst of Oil and Gas Air Pollution**

**June 22, 2016 – 5:01 pm |**

by Zahra Hirji (Inside Climate News) Two activist groups used government data to show 12.4 million people in the U.S. live within a half-mile of an oil and gas facility—and its pollution. — Environmentalists have ...

---

### **EPA Pushing Outdated, Costly Ethanol Fuel**

**June 22, 2016 – 1:36 pm |**

by Ryan Rowden (Missouri Petroleum Council/Kansas City Star) ... It's good to be the world's leading oil and natural gas producer. But an obsolete law passed before the U.S. energy resurgence could interfere.

...

The problem could be ...

---

### **Congressmen Seek E15 Reprieve from EPA Following National Marine Manufacturers Association Lobbying**

**June 22, 2016 – 1:03 pm |**

by Meghan Sapp (Biofuels Digest) In Washington, following a lobbying push by the National Marine Manufacturers Association, 45 congressmen have sent a letter to the EPA administrator voicing concerns about the 2016 blending mandate under

...

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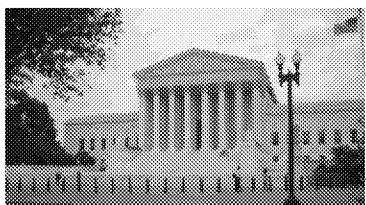
### **RFS Policy Instability Continues to Chill Investment in Advanced Biofuels, BIO Says**

**June 22, 2016 – 12:37 pm | [No Comment](#)**

(Biotechnology Innovation Organization) EPA's new methodology for setting annual Renewable Fuel Standards continues to chill investment in advanced biofuels, the Biotechnology Innovation Organization (BIO) finds in a new analysis released today. Investment patterns clearly demonstrate ...

---

## Latest Federal Litigation Posts



Fraud tops the federal litigation posts this month, along with litigation to light a fire under EPA on NOx and SOx standards. Federal litigation news sometimes overlaps with Federal Regulation items, so check both sections.

Find more items about federal litigation on our website, click [here](#).

---

### **Greens Sue EPA to Force New NOx, SOx Standards**

July 8, 2016 – 5:32 pm |

by Alex Guillén (Political Pro) ... The two standards were last reviewed in 2010 – meaning EPA is currently a year behind the five-year review schedule for those standards set under the Clean Air Act.

The Center ...

---

### **CEO of Former Michigan Biofuels Company Charged with \$2 Million Tax Scheme**

June 30, 2016 – 1:38 pm |

by Emily Monacelli (Michigan Live) The chief executive of a former Southwest



Michigan biofuels company has been indicted in what federal prosecutors allege was a scheme to defraud the government out of \$2 million in ...

---

### **Volkswagen's Diesel Settlement Will Fund Range of Clean Air Efforts**

June 28, 2016 – 11:49 am |

by David Shepardson and Joel Schectman (Reuters) German automaker Volkswagen AG (VOWG\_p.DE) will pay more than \$15.3 billion to settle charges that it cheated on U.S. diesel emissions tests, an agreement that will fund buybacks for ...

---

### **Two Florida Men Plead Guilty to Multi-State Biodiesel Fraud Scheme**

June 27, 2016 – 3:08 pm |

(U.S. Department of Justice) Thomas Davanzo, of Estero, Florida, and Robert Fedyna, of Naples, Florida, pleaded guilty today for their participation in a multi-state scheme to defraud biodiesel buyers and U.S. taxpayers by fraudulently selling ...

## **Advanced Biofuels USA Current Policy Analyses and Suggestions**

### ***Disappearing Fee on Non-Renewable Carbon Emissions***

On occasion, Advanced Biofuels USA develops policy analyses and suggestions. Over the past year, our focus has been on how to even the playing field among fossil fuels and renewables; how to recognize costs of externalities such as environmental damage; and how to weigh in on conversations about

carbon taxes.

One suggestion we have proposed is a fee on the non-renewable portion of transportation fuel; a fee that would NOT apply to the renewable portions of the fuel. We believe this will both create a revenue source for research, development and deployment of renewable fuels AND give market-based incentives for transitioning to renewables.

Most recently, BioFuelNet Canada published a summary of these ideas in their blog post: <http://www.biofuelnet.ca/2016/06/21/disappearing-non-renewable-carbon-user-fee/>

---

### ***After the Fall: Rebuilding US Liquid Fuel Production – Invest in Our Land or the Shale Oil Fields?***

Every day that oil prices remain below the approximately \$55/barrel breakeven point to produce US shale oil, the probability of restarting the US shale oil industry with private capital decreases. Not only are oil service industry companies going out of business and laying off well-paid workers (oil well drilling is running at about 29% of the 2014 maximum, 467 versus 1609 rigs), but the industrial infrastructure is closing down as well.

When world oil prices return to levels that would make fracking oil drilling profitable, should the US government pay Wall Street for their bad bets of over \$200 billion while also providing financing to the drillers to restore US liquid fuel production of 2-3 million barrels/day?

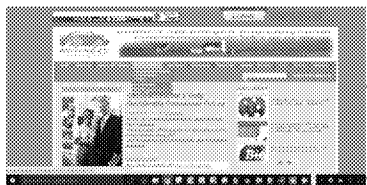
Or, should the US invest a small portion of the past debt bailout in a US advanced renewable biofuel industry that would be more sustainable, significantly reduce GHG emissions, and create and retain more jobs than the boom-and-bust US oil

industry?

**Robert Kozak** explores three strong arguments for the US to invest in the biobased renewable fuel industry to produce these liquid fuels instead of restarting shale oil production with US taxpayer money. <http://advancedbiofuelsusa.info/after-the-fall-rebuilding-us-liquid-fuel-production-invest-in-our-land-or-the-shale-oil-fields-part-2-of-2/>

## More Educational Resources

### ***Presentations for Public Use***



Just a reminder: In the [Biofuels Basics](#) section of the Advanced Biofuels USA website, you can find PowerPoint presentations for use "as is" or as resources for your own slide show.

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### ***Educational News***

#### **AMERIgreen Energy Lets Students Find #Energy Solutions**

July 8, 2016 – 2:29 pm |

by Joanna Schroeder (Energy.AgWired.com) Students of all ages were able to voice their ideas on America's energy future in AMERIgreen Energy's Video Essay

Challenge. Students ranging in grades 1st-12th, as well as undergraduate college students ...

---

### **Meet the US Farmers Turning Their Tobacco into Airplane Fuel**

July 6, 2016 – 6:27 pm |

by Jodi Helmer (The Guardian) As the demand for tobacco declines in the US, farmers in Virginia are experimenting with turning the crop into viable biofuel — ... One two-acre plot stands apart from the rest, ...

---

### **EPA Awards Environmental Education Grants in 26 States**

July 5, 2016 – 7:46 pm |

(U.S. Environmental Protection Agency) The U.S. Environmental Protection Agency announced the completion of grant awards under the 2015 Environmental Education (EE) Grants Program. EPA will award grants under the 2016 EE Grants Program later this year.  
Projects ...

---

### **FFA Educates #NASCAR Fans about #E15**

July 1, 2016 – 2:03 pm |

by Joanna Schroeder (Energy.AgWired.com) The Twin Cedars FFA Chapter was out in en mass during the recent American Ethanol E15 250 presented by Enogen to educate race fans about ethanol and E15. Chuck hung out with ...

---

### **BBI Announces Kathy Bryan Memorial Scholarship Recipients**

June 27, 2016 – 7:04 pm |

by Ann Bailey (Ethanol Producer Magazine) BBI International has awarded the 2016 Kathy Bryan Memorial Scholarship to Donald Jackson and Patrick Thimes. The two \$2,000 memorial scholarships are awarded annually to students pursuing degrees that may ...

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**If you can help students attend conferences, please do. It's an incredibly valuable experience.**

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## *Scholarships and Competitions*

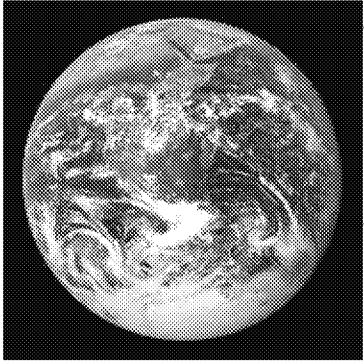
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CBMNet Funding Announcements; Includes Undergraduate Vacation Scholarships Various deadlines (Crossing Biological Membranes Network) At CBMNet we foster collaborations between academia and industry to tackle research challenges in Industrial Biotechnology and Bioenergy (IBBE). We are working to understand the mechanisms by which substances are transported into, ...

## **Grant Opportunities**

For a list of grant opportunities, [CLICK HERE](#).

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ENERGY AND WATER DEVELOPMENT APPROPRIATIONS  
BILL, 2010

JULY 9, 2009.—Ordered to be printed

Mr. DORGAN, from the Committee on Appropriations,  
submitted the following

REPORT

[To accompany S. 1436]

The Committee on Appropriations reports the bill (S. 1436) making appropriations for energy and water development and related agencies for the fiscal year ending September 30, 2010, and for other purposes, favorably thereon and recommends that the bill do pass.

The Committee on Appropriations, to which was referred the bill (H.R. 0000) making appropriations for energy and water development and related agencies for the fiscal year ending September 30, 2010, and for other purposes, reports the same to the Senate with an amendment, and an amendment to the title, and recommends that the bill as amended do pass.

*Amount in new budget (obligational) authority, fiscal year 2010*

Total of bill as reported to the Senate .....	\$34,271,000,000
Amount of 2009 appropriations .....	92,533,165,000
Amount of 2010 budget estimate .....	34,914,709,000
Bill as recommended to Senate compared to—	
2009 appropriations .....	–58,262,165,000
2010 budget estimate .....	–643,709,000



# CONTENTS

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	Page
Purpose .....	4
Summary of Estimates and Recommendations .....	4
Title I:	
Department of Defense—Civil: Department of the Army:	
Corps of Engineers—Civil:	
General Investigations .....	16
Construction, General .....	32
Flood Control, Mississippi River and Tributaries .....	50
Operation and Maintenance, General .....	52
Flood Control and Coastal Emergencies .....	73
Formerly Utilized Sites Remedial Action Program .....	74
General Expenses .....	74
General Provisions—Corps of Engineers—Civil .....	76
Title II:	
Department of the Interior:	
Central Utah Project Completion Account .....	78
Bureau of Reclamation:	
Water and Related Resources .....	78
Central Valley Project Restoration Fund .....	86
California Bay-Delta Restoration .....	86
Policy and Administration .....	86
General Provisions—Department of the Interior .....	87
Title III:	
Department of Energy:	
Energy Efficiency and Renewable Energy .....	89
Electricity Delivery and Energy Reliability .....	96
Nuclear Energy .....	97
Fossil Energy Research and Development .....	100
Naval Petroleum and Oil Shale Reserves .....	102
Strategic Petroleum Reserve .....	102
Northeast Home Heating Oil Reserve .....	102
Energy Information Administration .....	103
Non-Defense Environmental Cleanup .....	103
Uranium Enrichment Decontamination and Decommissioning Fund ..	104
Science .....	104
High Energy Physics .....	105
Nuclear Physics .....	105
Biological and Environmental Research .....	105
Basic Energy Sciences .....	105
Nuclear Waste Disposal .....	108
Departmental Administration .....	109
Office of Inspector General .....	109
Atomic Energy Defense Activities:	
National Nuclear Security Administration:	
Weapons Activities .....	110
Defense Nuclear Nonproliferation .....	115
Naval Reactors .....	117
Office of the Administrator .....	118
Environmental and Other Defense Activities:	
Defense Environmental Cleanup .....	118
Other Defense Activities .....	121
Defense Nuclear Waste Disposal .....	121
Power Marketing Administrations:	
Operation and Maintenance, Southeastern Power Adminis-	
tration .....	122

Title III—Continued	
Department of Energy—Continued	
Environmental and Other Defense Activities—Continued	
Power Marketing Administrations—Continued	
Operation and Maintenance, Southwestern Power Adminis-	
tration .....	122
Construction, Rehabilitation, Operation and Maintenance,	
Western Area Power Administration .....	122
Federal Energy Regulatory Commission: Salaries and Expenses ..	123
General Provisions—Department of Energy .....	154
Title IV:	
Independent Agencies:	
Appalachian Regional Commission .....	155
Defense Nuclear Facilities Safety Board .....	155
Delta Regional Authority .....	156
Denali Commission .....	156
Nuclear Regulatory Commission .....	156
Office of Inspector General .....	157
Nuclear Waste Technical Review Board .....	157
Tennessee Valley Authority Office of the Inspector General .....	157
General Provision—Independent Agencies .....	158
Title V: General Provisions .....	159
Compliance With Paragraph 7, Rule XVI, of the Standing Rules of the	
Senate .....	160
Compliance With Paragraph 7(c), Rule XXVI, of the Standing Rules of the	
Senate .....	160
Compliance With Paragraph 12, Rule XXVI, of the Standing Rules of the	
Senate .....	161
Budgetary Impact Statement .....	166
Disclosure of Congressionally Directed Spending Items .....	166
Comparative Statement of Budget Authority .....	230

## PURPOSE

The purpose of this bill is to provide appropriations for the fiscal year 2010 beginning October 1, 2009, and ending September 30, 2010, for energy and water development, and for other related purposes. It supplies funds for water resources development programs and related activities of the Department of the Army, Civil Functions—U.S. Army Corps of Engineers' Civil Works Program in title I; for the Department of the Interior's Bureau of Reclamation in title II; for the Department of Energy's energy research activities, including environmental restoration and waste management, and atomic energy defense activities of the National Nuclear Security Administration in title III; and for related independent agencies and commissions, including the Appalachian Regional Commission, Delta Regional Authority, Denali Commission, and the Nuclear Regulatory Commission in title IV.

## SUMMARY OF ESTIMATES AND RECOMMENDATIONS

The fiscal year 2010 budget estimates for the bill total \$34,914,709,000 in new budget (obligational) authority. The recommendation of the Committee totals \$34,271,000,000. This is \$643,709,000 below the budget estimates and \$58,262,165,000 below the enacted appropriation for the current fiscal year.

## SUBCOMMITTEE HEARINGS

The Appropriations Subcommittee on Energy and Water held three sessions in connection with the fiscal year 2010 appropriation bill. Witnesses included officials and representatives of the Federal agencies under the subcommittee's jurisdiction.

The recommendations for fiscal year 2010 therefore, have been developed after careful consideration of available data.

## VOTES IN THE COMMITTEE

By a vote of 30 to 0 the Committee on July 9, 2009, recommended that the bill, as amended, be reported to the Senate.

TITLE I  
DEPARTMENT OF DEFENSE—CIVIL  
DEPARTMENT OF THE ARMY  
CORPS OF ENGINEERS—CIVIL

INTRODUCTION

The Corps of Engineers is made up of approximately 35,000 civilian and 650 military members that perform both military and civil works functions. The military and civilian engineers, scientists and other specialists work hand in hand as leaders in engineering and environmental matters. The diverse workforce of biologists, engineers, geologists, hydrologists, natural resource managers, and other professionals meets the demands of changing times and requirements as a vital part of America's Army.

The Corps' mission is to provide quality, responsive engineering services to the Nation including:

- Planning, designing, building and operating water resources and other civil works projects. (Navigation, Flood Control, Environmental Protection, Disaster Response, et cetera);
- Designing and managing the construction of military facilities for the Army and Air Force. (Military Construction); and
- Providing design and construction management support for other Defense and Federal agencies. (Interagency and International Services).

The Energy and Water bill only funds the Civil Works missions of the Corps of Engineers. Approximately 23,000 civilians and about 190 military officers are responsible for this nationwide mission.

From our hundreds of rivers, lakes, and wetlands to our thousands of miles of coastal shoreline, we are fortunate in America to enjoy an abundance of water resources. As a Nation, we value these resources for their natural beauty; for the many ways they help meet human needs; and for the fact that they provide habitat for thousands of species of plants, fish and wildlife.

The Congress has given the Corps of Engineers the responsibility of helping to care for these important aquatic resources.

Through its Civil Works program the Corps carries out a wide array of projects that provide:

- Coastal storm damage reduction;
- Disaster preparedness and response;
- Environmental protection and restoration;
- Flood damage reduction;
- Hydropower;
- Navigable waters;
- Recreational opportunities;

- Regulatory oversight and
- Water supply.

One of the biggest challenges the Corps and other Government agencies face is finding the right balance among the often conflicting concerns our society has related to our water resources. Society wants these resources to help fuel economic growth (navigation, hydropower). Society wants them to provide social benefits (recreation). And finally society wants to be sure that they are available for future generations (environmental protection and restoration).

The Corps is charged with seeking to achieve the best possible balance among these competing demands through an integrated approach to water resources management that focuses on regional solutions, involving an array of stakeholders (that is other Government agencies, environmental groups, businesses, and private organizations). In recent years, the Corps has implemented this approach largely by concentrating on watersheds.

#### OVERVIEW AND ANALYSIS OF THE FISCAL YEAR 2010 BUDGET REQUEST

The fiscal year 2010 budget request for the Corps of Engineers is composed of \$5,125,000,000 in new budget authority. This is an increase of \$384,000,000 from the fiscal year 2009 request. The budget request is \$277,000,000 less than the fiscal year 2009 enacted amount—the narrowest gap in recent memory. This is the first budget for the Corps of Engineers by this administration and the Committee sees definite improvements over the previous administrations proposals. However, much more needs to be done to truly change the paradigm under which Corps budgets seems to be produced within the executive branch.

The Committee believes that the administration should seriously evaluate the Nation's infrastructure needs and budget accordingly. At a time when this existing infrastructure, the foundation of our economic security and quality of life, is depreciating much faster than it is being recapitalized, when our increasing population is placing much greater stress on the Nation's vital water resources, when shifts in population centers mean new and different problems and when a growing environmental awareness requires new solutions to persistent problems, this underfunding is unacceptable and threatens our continued well-being. Infrastructure budgets have got to be increased. If not, the Nation will continue to face unscheduled outages, damaged incomplete infrastructure and other emergency situations that must be dealt with through ever increasing emergency appropriations.

This budget proposal again ignores studies and projects that are ongoing and funded in the Energy and Water section of the fiscal year 2009 omnibus that was agreed to by the Congress and signed into law by the President in favor of a select group of studies and projects that comport to budgetary criteria devised by the administration without any input from the public or the Congress. The Committee accepts that it is the prerogative of the administration to develop whatever criteria that it sees fit to utilize in order to decide which projects it will and will not fund. What this Committee does not accept is that the administration developed criteria is

somehow superior to and should supplant the investment decisions of Congress.

The Committee agrees with some of the administration's criteria. The Committee believes it is important to fund the capability level for dam safety projects. Likewise the Committee believes that it is a Federal obligation to fund mitigation and environmental compliance activities. Funding obligations under continuing contracts and projects that factor in the consideration of human safety are certainly laudable criteria for determining which projects to fund.

However, the Committee differs with the administration concerning benefit to cost ratios being utilized to establish priority for funding. The Principles and Guidelines utilized by the Corps require the Chief of Engineers to develop the National Economic Development [NED] plan for a project. The NED plan, among other things, is distinguished by the fact that it provides the greatest excess benefits over the project costs. This is not the same thing as the highest benefit to cost [B/C] ratio. It is often the case that the NED plan and the plan with the highest B/C ratio are not the same plan.

The Flood Control Act of 1936 established that project benefits should exceed projects costs. This has been the Corps' longstanding water resource policy and attempts to change this legislative requirement have been unsuccessful. However, the administration has arbitrarily decided that benefits simply exceeding the costs is not a sufficient measure of a project's worth. They have decided that they will only budget for projects that have benefit to cost ratios significantly greater than one to one. Unfortunately the B/C ratio has arbitrarily changed from year to year in order to accommodate the administrations desired level of investment.

The criteria for deciding which studies to budget for appears to be even murkier than the criteria for determining which construction projects to fund. What is obvious is the result. Fewer studies are funded every year than are enacted in the previous appropriation act. These studies provide the information needed to make vital investments in our water resources infrastructure. However, they are de-emphasized in the budget request. One study, albeit an important one, consumes nearly 50 percent of the resources dedicated to studies across the country.

As this Committee has noted in the past, planning in the Corps is a specialized skill set and once that ability is lost, it is difficult to re-establish. Most of the criticisms of the Corps' project development process in recent years have centered on the planning process. The administration is providing funding for some improvements to the planning program such as funding the Planning Associates Program and Planning Centers of Expertise. However, planning studies have to be undertaken to utilize these improvements. The Committee believes that the Corps should have a robust planning program to not only address new water resource needs but to evaluate changes throughout the project development process. Continued budgets like this will lead to a complete loss of this vital Corps of Engineers' competency. The administration should seriously revise their priorities for this account in the fiscal year 2011 budget.

The Committee is pleased that the shifting of items from the Construction, General [CG] account to the Operation and Maintenance [O&M] account has not been all but abandoned by this administration. There is still roughly \$47,067,000 of traditionally funded construction items contained in the fiscal year 2010 O&M account. The Committee believes this was just an oversight in preparation of the budget. These items are identified in a table in the section of this report dealing with the CG account. The budget request is shown in the O&M account and the funded amounts are included in the CG account.

With these items shifted to their proper accounts, the CG account total for the budget request would be \$1,765,067,000 and the O&M budget request would be \$2,456,933,000. This means that the administration's CG request is down \$376,610,000 from the fiscal year 2009 enacted amount and the O&M account shows a true increase of \$255,033,000 from the fiscal year 2009 enacted. This increase to the O&M account is long overdue as this account has remained relatively stagnant this decade while personnel and material costs continue to increase. The Committee is pleased that the administration did not present the O&M budget in the ill-conceived regional budget groupings proposed for the last several years.

The regulatory budget is \$190,000,000 for fiscal year 2010. This is up about \$7,000,000 from the fiscal year 2009 enacted amount. This increase is largely due to the increased workload from trying to implement regulatory requirements in light of the unclear Rapanos and SWANCC Supreme Court cases.

The Committee is disappointed that funding for the Formerly Utilized Sites Remedial Action Program [FUSRAP] was cut by \$6,000,000 from the fiscal year 2009 enacted amount of \$140,000,000. This program was transferred to the Corps from the Department of Energy, because the Committee was concerned with management and cost issues of the program within the Energy Department. This is a program that is being well managed by the Corps and should have stable, adequate budget resources to continue these radiological clean-up activities.

The Flood Control and Coastal Emergencies account is proposed at \$41,000,000 for fiscal year 2010. These funds are proposed for Corps readiness and preparedness activities of the Corps of Engineers.

The Office of the Assistant Secretary of the Army (Civil Works) is proposed as a separate account for \$6,000,000. The Committee continues to believe that the Assistant Secretary's office should be funded in the Defense appropriations bill. However, until such time as that can be reintegrated into that bill, the Committee agrees that the office should be funded as a separate account. The Assistant Secretary's duties encompass much more than the civil works functions of the Corps of Engineers and the budget needs of the office should be addressed separately.

The General Expenses [GE] account is proposed at \$184,000,000 for fiscal year 2010. While this is a little less than the inflation adjusted amount, the Committee is pleased to see the recognition that the oversight functions of the headquarters of the Corps should be strengthened. The Committee notes that the Corps operates one of the most efficient headquarters staffs in the National Capital re-

gion. Only about 3.5 percent of their staffing is at their headquarters level as opposed to 10 percent or more for comparable agencies in the National Capital region.

#### THE AMERICAN RECOVERY AND REINVESTMENT ACT OF 2009

The American Recovery and Reinvestment Act of 2009 [ARRA] was an attempt to combat the recession by putting our citizens back to work rebuilding our Nation's water resource infrastructure. The Committee was amazed that the Corps was not included in the administration's original proposal. The Corps would have seemed to have been one of the first agencies that one would go to create jobs. However, after negotiations with the Congress, the administration agreed that funding for the Corps would be a component of the ARRA. The Corps was provided \$4,600,000,000 to stimulate job growth by addressing needed water resource infrastructure needs.

The Recovery Act gave the administration complete discretion as to which projects would be funded and how much funding each project would receive. The Congress provided general guidance expressing Congressional intent as to how the funds should be utilized. The President signed the ARRA on February 17, 2009, and by all accounts the Corps had internally developed a list of projects within about 30 days that met the Congress' intent of creating jobs across the country while completing usable increments of projects or providing deferred maintenance to projects. One of the primary criteria that the Corps' utilized in their project list was the ability to get the work underway quickly. After all, the goal was to quickly create jobs. However, on the eve of releasing this list, the administration decided to reevaluate the criteria that the Corps had internally used to develop its' project list. This review took another 30 days and by all accounts resulted in a drastically different list than what the Corps originally proposed—particularly in the CG account. In the Committee's opinion, this additional administration review did not result in an improved list. In fact the Committee believes that it delayed execution of these funds and included projects that were not "shovel ready" but may have had other attributes the administration found compelling.

The Committee found many of the funding choices made by the administration questionable. Again the internal criteria for making these decisions was developed without public input. Criteria was provided when the ultimate project lists were released, but some of the logic behind the decisions was tortured and hard to follow based on a straight reading of the administration's criteria. The Committee was particularly disappointed that shore protection projects were deemed ineligible to receive funding from the ARRA. The Committee see these projects as being "shovel ready" and providing the same NED benefits to the Nation that any flood damage reduction project does. The Committee believes they should have been funded and encourages the administration to use unexpended ARRA funds for this legitimate Federal purpose.

While the President was celebrating the initiation of the 1,000th transportation project funded by the ARRA, the Corps project list was still under administrative review. The first report on expenditures from the Corps was indicative of this extended review by showing virtually none of the funds expended more than 75 days



after enactment of the ARRA. We are now more than 4 months after enactment of the ARRA and are still seeing little progress on getting projects started. This should be unacceptable to the administration. It certainly is to this Committee.

#### PERFORMANCE-BASED BUDGETING

While not calling this a performance-based budget, many of the same criteria seem to be at play in the decisionmaking process. The Committee hopes that the administration will try to work with Congress to try to find a better budget model as they begin the development process for the fiscal year 2011 budget. It is imperative that the Congress and the executive branch find common ground on investment decisions for water resource development if we are to effectively confront the numerous water resource issues that face the Nation.

The Committee believes that Corps budgets should be developed from the bottom up, district to division to headquarters to ASA to OMB. District commanders should be responsible for developing and managing a program within their geographic area. Division commanders should be responsible for integrating the district office programs into a single division-wide program. The headquarters office should integrate the division programs into a single national program. The Office of the Assistant Secretary of the Army should assure that the program complies with administration policy and budgetary guidance and OMB develops the budgetary guidance and provides funding levels. Decisions for budgeting should be made within the framework of administration policy by those who know the projects and programs best, not Washington level bureaucrats. Unfortunately, if the ARRA is any guide, this will not be the case.

#### BUDGET JUSTIFICATIONS

As often happens with a change of administrations, the administration's fiscal year 2010 budget request was delayed beyond the traditional first Monday in February release. This is to be expected. The President released his budget outline in March 2009, with the formal budget documents released on May 7, 2009. Inexplicably, the detailed budget justifications for the Corps of Engineers were not received until 5 weeks after the budget was released. The justifications that were provided only covered the GI, and CG accounts plus the remaining items in O&M. That means the administration provided no detailed justification for \$2,400,000,000 of the Corps budget. This is unacceptable. This has now happened twice in the past 4 years. It is inconceivable to this Committee that DOE with a budget 5 times the size of the Corps can get printed and bound editions of their budget justification delivered on the day the budget is released and the Corps cannot even get their justifications on the Internet for 5 weeks after the budget is released. The administration should note that this situation will not be tolerated for the fiscal year 2011 budget. If every other executive branch agency can produce detailed budget justifications when the budget is released, the Corps should be able to also.

The Committee appreciates the traditional layout of the justifications that were finally delivered. It was especially good to see that both the Flood Plain Management Services and Planning Assist-

ance to States GI line items provided a detailed breakdown of the funding requests for these programs for the first time ever. Unfortunately, this level of detail was not included for the Continuing Authorities Program or the Dam Safety/Seepage Stability Correction Program. The justifications for these items showed a total dollar value and listed projects, but neither program justification gives the Committee an idea of how the program totals were arrived at. There is no way to know whether the administration proposal underfunds or overfunds these programs.

The Committee believes that budget justifications serve to justify the administration's request. The budget justifications should be improved by providing more relevant budget and project information. For fiscal year 2011 the Corps is directed to provide, at a minimum, detailed project information for each O&M project justifying the needs for each project.

#### INLAND WATERWAY TRUST FUND

More than 3 years ago, this Committee was made aware of a pending shortfall in the Inland Waterway Trust Fund. It took the previous administration 2 years from when they first notified the Committee of the issue to actually submit a proposal to Congress to address this shortfall. Unfortunately this proposed lockage fee was developed as a part of the fiscal year 2009 budget deliberations and, as such, the administration did not coordinate it with industry. When the proposal was announced it was loudly criticized by the navigation industry (who had no input into the proposal) and was largely considered dead on arrival. Unfortunately, the administration's budget request assumed revenues from this lockage fee would be available to fund a portion of their fiscal year 2009 budget request. This put the Committee in the awkward position of trying to make the budget work with insufficient funds.

When the fiscal year 2010 budget was presented to Congress, the budget repeated the proposal to phase out the existing fuel tax that funds the IWTF and phase in a lockage fee. Fortunately, the budget was not predicated on this proposal being enacted. The administration proposal only expends existing revenues available in the IWTF and deposits assumed revenues from the lockage fee into the IWTF to be used in subsequent years. This is a much more prudent way to budget with these limited funds.

The Committee has supported and continues to support sharing the cost of construction and major rehabilitations between the IWTF and the General Treasury in the CG account. The Committee believes that this arrangement makes the users active partners in the overall inland waterway system and provides for a better more efficient system. As the Congress already pays 100 percent of the O&M costs of the inland waterway system, the Committee would not support a change in cost sharing for the IWTF. Even if it did support a cost share change, this would only prolong the inevitable bankrupting of the IWTF.

The current fuel tax generates about \$90,000,000 annually. Currently awarded continuing contracts for IWTF projects will require approximately \$60,000,000 of this amount for the next 3 years. The Committee believes that the only way to solve the problem is to generate additional revenues in the fund. The current fuel tax is

spread relatively equitably across all commercial users of the inland waterway system. However, the fuel tax has remained at \$0.20 per gallon of diesel fuel since 1996. Inflation and increased efficiency in tow boats has eroded the value of the fuel tax. One potential solution is to index the fuel tax to inflation. Another solution would be to keep the current fuel tax in place but to add a lock user fee to the revenue stream. This way, all users would pay something and those that use the locks would pay more. Other potential solutions that could be considered include a bulk commodity tax collected from the river terminals, a nationwide marine fuel tax, or even a national sales tax. A wholesale change from a fuel tax to a user fee as proposed by the administration appears to be unacceptable to Congress or the inland waterway industry. However, the Committee only proffers these as discussion topics. As waterways are the most efficient mode of transport any solution to the funding shortfall should not provide disincentives for using the inland waterways.

Legislative text is again included this year to prohibit the Corps from entering into any new continuing contracts for any inland waterway project until the revenue stream for the IWTF is enhanced. The administration should submit the fiscal year 2011 budget based on expected revenues in the IWTF not based on projections based on legislation that may or may not happen. No change in law has been made nor will this Committee propose any to alleviate the funding problem in this fund. A solution to this problem must be developed with the users of the system, the Corps and the appropriate authorizing committees of the Congress.

#### CONGRESSIONALLY DIRECTED SPENDING

The budget for the Corps of Engineers consists of individual line items of projects. As presented by the President, the budget contains 969 specific line item requests for directed spending by the administration. Additional funding is requested by the administration for nationwide line items. All of these line items were specific requests by the administration of the Congress to be funded in fiscal year 2010. They did not request these funds programmatically, they requested them for a specific project in a specific location for a specific purpose.

The Committee has returned to its tradition of including funding for the Corps of Engineers by account in legislative text and provided the details for each account within the report that accompanies the legislation. This provides the agency some flexibility in how funds are expended and allows the Corps to effectively manage their program while honoring the intent of Congress. The primary intent of Congress has always been that once the Congress funded a study, it intended for the study phase to be completed to determine if Federal investment is warranted. By the same token, once the Congress committed to initiation of construction of a project, it intended for the project to be completed and the national economy to accrue the project benefits.

#### CONTINUING CONTRACTS AND REPROGRAMMING

The Committee expects the Chief of Engineers to execute the Civil Works program generally in accordance with congressional di-

rection. This includes moving individual projects forward in accordance with the funds annually appropriated. However, the Committee realizes that many factors outside the Corps' control may dictate the progress of any given project or study.

The Committee is retaining the reprogramming guidance for fiscal year 2010 that was enacted for fiscal year 2009. The guidance is as follows:

*General Investigations.*—For a base funding level less than \$100,000, the reprogramming limit is \$25,000. For a base level over \$100,000, 25 percent up to a limit of \$150,000 per study or activity. Amounts over this limit will require approval of the House and Senate Appropriations Committees, except that the Committee does not object to reprogramming up to \$25,000 to any continuing study or activity that did not receive an appropriation in the current year.

*Construction, General.*—For a base less than \$2,000,000, the reprogramming limit is \$300,000. For a base level over \$2,000,000, 15 percent up to a limit of \$3,000,000 per project or activity. The Committee will allow reprogramming up to \$3,000,000 for settled contractor claims, accelerated earnings or real estate deficiency judgments. Amounts over this limit require approval of the House and Senate Appropriations Committees. Reprogramming within each section of the Continuing Authorities is unlimited however, the percentages between studies and implementation must be maintained as directed in this report. Further, no reprogramming is allowed between sections nor into or out of the overall CG account. The Committee does not object to reprogramming of up to \$300,000 to any continuing project or program that did not receive an appropriation in the current year.

*Operations and Maintenance.*—Unlimited reprogramming authority is granted in order for the Corps to be able to respond to emergency situations. The Chief of Engineers must notify the House and Senate Appropriations Committees of these emergency actions as soon thereafter as practicable. For all other situations, for a base less than \$1,000,000, the reprogramming limit is \$150,000. For a base over \$1,000,000, 15 percent up to a limit of \$5,000,000 per project or activity. Amounts over this limit require approval of the House and Senate Appropriations Committees. The Committee does not object reprogramming up to \$150,000 to any continuing project or program that did not receive an appropriation in the current year.

*Mississippi River and Tributaries.*—The Corps should follow the same reprogramming guidelines for the GI, CG, and O&M portions of the Mississippi River and Tributaries account as listed above.

*Formerly Utilized Sites Remedial Action Program.*—The Corps may reprogram up to 15 percent of the base of the receiving project.

*Continuing Authorities Program.*—The reprogramming guidance does not apply to the Continuing Authorities Program [CAP]. The Corps has unlimited reprogramming within each section of the CAP but shall not reprogram funding from the CG account to any section of CAP or between CAP sections.

## 5-YEAR COMPREHENSIVE BUDGET PLANNING

While the Committee appreciates the Corps' attempts to provide a meaningful 5-year budget plan, it recognizes the inherent difficulties between the legislative and executive branches in preparing a useful plan. The executive branch is unwilling to project a 5-year horizon for projects for which they do not budget leaving a sizeable percentage of the Corps annual appropriations with a year-to-year event horizon for planning purposes. The fact that a sizeable portion of the annual appropriations are dedicated to congressional priorities is not a new phenomenon. Many major public works projects over the last two centuries have been funded on an annual basis without a clear budget strategy. The Committee would welcome the ideas and the opportunity to work with the executive branch to determine a mutually agreeable way to develop an integrated 5-year comprehensive budget that displays true funding needs for congressional as well as administration priorities. Anything less will only give a partial view of the investments needed in water resources infrastructure.

## COMMITTEE RECOMMENDATION

The Committee recommendation includes a total of \$5,405,000,000. This is \$280,000,000 over the administration's budget request and \$2,635,000 above the fiscal year 2009 enacted amount. Funding is displayed in the following table. The first column represents the President's budget as requested, the second column is displayed with the President's request in the accounts where the projects have been traditionally located, the third column is the Senate Recommendation and the final column is the Senate recommendation versus the President's request in the traditional account structure. Funding by account is as follows:

	Fiscal year 2010 President's budget	Fiscal year 2010 request	Senate recommendation	Request vs. recommendation
General Investigations .....	\$100,000	\$100,000	\$170,000	\$ + 70,000
Construction, General .....	1,718,000	1,765,067	1,924,000	+ 158,933
Mississippi River and Tributaries .....	248,000	248,000	340,000	+ 92,000
Operation and Maintenance .....	2,504,000	2,456,933	2,450,000	- 6,933
Regulatory .....	190,000	190,000	190,000	.....
Flood Control and Coastal Emergencies .....	41,000	41,000	.....	- 41,000
Formerly Utilized Sites Remedial Action Program .....	134,000	134,000	140,000	+ 6,000
Office of the Assistant Secretary of the Army (Civil Works) .....	6,000	6,000	5,000	- 1,000
General Expenses .....	184,000	184,000	186,000	+ 2,000
Total .....	5,125,000	5,125,000	5,405,000	+ 280,000

## NEW STARTS

Out of the more than 2,100 requests this Committee received for Corps projects and studies for fiscal year 2010, 93 were for new study requests; 163 were for new construction projects. Of this 163, 92 were for new water and sewer projects for the Corps. That is an astounding total of 12 percent of the Committee requests for new studies and projects. This is demonstrative of the tremendous need for water resource solutions across the Nation. Neither the

administration nor the Congress is able to find the budget resources to address these critical needs.

The administration's budget request proposed seven new construction starts and three new study starts in fiscal year 2010. These new construction starts account for \$92,700,000 or 5.4 percent of the CG budget request for fiscal year 2010 and would require in excess of \$800,000,000 in future appropriations to fund the obligations that would be incurred by starting these new projects. Starting these projects would only increase the pressure on the administration next year to establish budgetary criteria that would exclude more projects from funding consideration in order to fund these new priorities.

While the Committee is recommending a boost to the construction budget that is \$158,900,000 above the budget request, this recommendation is \$80,500,000 less than what was proposed in the Senate bill in fiscal year 2009. Further, the Committee's CG recommendation is \$217,700,000 below the fiscal year 2009 enacted CG amount. The Committee believes that recommending new starts in this budget environment would be imprudent. These new starts would get over the "new start" hurdle, only to face a budget that cannot accommodate all of these needs. One has to ask, is it more prudent to start a project, or to adequately fund those that have been started?

The Committee has decided that there just are not sufficient resources to start any new studies or projects in the fiscal year 2010 bill—either the administration's new starts or those proposed by Congress. The Committee continues to believe that new starts are a vital part of the Corps' program, there just are not sufficient funding resources to start new obligations at this time. If additional resources become available in conference, the Committee might re-evaluate this decision.

#### DISCLOSURE PROVISIONS

The Committee received more than 2,000 requests for projects, programs, studies, or activities for the Corps of Engineers for fiscal year 2010. These requests included the budget request as well as requests by Members. The Committee obviously was unable to accommodate all of these requests.

In the interest of providing full disclosure of funding provided in the energy and water bill, all disclosures are made in the report accompanying the bill.

All of the projects funded in this report have gone through the same rigorous public review and approval process as those proposed for funding by the President. The difference in these projects, of course, is that the congressionally directed projects are not subject to the artificial budgetary prioritization criteria that the administration utilizes to decide what not to fund.

There are two disclosure tables this year. One table discloses the recommended amounts that are in excess of those proposed in the budget request and the Members names that made these requests. If the Member requested the budget request or if only the budget request was provided, Member names are not listed next to these items because under the provisions of Rule 44 this would not be considered congressionally directed spending. The second table dis-

closes only those earmarks requested by the President and the amount recommended or the budget request whichever is appropriate.

The purposes for the funding provided in the various accounts is described in the paragraphs associated with each account. The location of the programs, projects, or studies are denoted in the account tables.

#### GENERAL INVESTIGATIONS

Appropriations, 2009 .....	<sup>1</sup> \$168,100,000
Budget estimate, 2010 .....	100,000,000
Committee recommendation .....	170,000,000

<sup>1</sup> Excludes emergency appropriations of \$25,000,000.

This appropriation funds studies to determine the need, engineering feasibility, economic justification, and the environmental and social suitability of solutions to water and related land resource problems; and for preconstruction engineering and design work, data collection, and interagency coordination and research activities.

The planning program is the entry point for Federal involvement in solutions to the Nation's water resource problems and needs. Unfortunately, the General Investigations [GI] account amount proposed in the budget is only marginally better than what has been proposed in previous budgets. Nationwide studies and programs consume almost half of the administration's GI request. This budget is saying that the Nation should concentrate scarce resources on completing studies but not carrying forward ongoing studies. However, the budget request was able to carve out \$700,000 for three new starts. While this Committee supports new study starts believing them a vital part of the planning program, the Committee does not support new starts when so many on-going studies are unfunded in the budget request.

The Committee has provided for a robust and balanced planning program for fiscal year 2010. However, no new starts are included in this recommendation. To provide additional transparency in the budget process, the Committee has segregated the budget into three columns in the following table.

The first column represents the reconnaissance phase of the planning process. These studies determine if there is a Federal interest in a water resource problem or need and if there is a cost sharing sponsor willing to move forward with the study. The next column represents the feasibility phase of the study. These detailed cost-shared studies determine the selected alternative to be recommended to the Congress for construction. The third column represents the preconstruction engineering and design phase. These detailed cost-shared designs are prepared while the project recommended to Congress is awaiting authorization for construction.

The Committee hopes that by segregating the table in this manner that more attention will be focused on the various study phases, and a more balanced planning program will be developed by the administration. As the last two columns are generally cost shared, they demonstrate the commitment by cost-sharing sponsors to be a part of the Federal planning process. By the same token, it also shows the level of commitment of the Federal Government

to these cost-sharing sponsors. The Committee directs that the fiscal year 2011 planning budget be presented to the Committee in this fashion.



The budget request and the recommended Committee allowance are shown on the following table:

CORPS OF ENGINEERS—GENERAL INVESTIGATIONS

[In thousands of dollars]

Project title	Budget estimate		Committee recommendation		
	Investiga- tions	Planning	RECON	FEAS	PED
ALASKA					
HOMER HARBOR MODIFICATION, AK .....	.....	.....	.....	340	.....
KOTZEBUE SMALL BOAT HARBOR, AK .....	.....	.....	.....	210	.....
MATANUSKA RIVER WATERSHED, AK .....	100	.....	.....	100	.....
VALDEZ HARBOR EXPANSION, AK .....	.....	.....	.....	.....	385
WHITTIER HARBOR, AK .....	.....	.....	.....	340	.....
YAKUTAT HARBOR, AK .....	450	.....	.....	450	.....
ARIZONA					
PIMA COUNTY, AZ .....	275	.....	.....	275	.....
VA SHLY-AY AKIMEL SALT RIVER RESTORATION, AZ .....	.....	658	.....	.....	658
ARKANSAS					
LOWER MISSISSIPPI RIVER RESOURCE STUDY, AR .....	.....	.....	.....	250	.....
MAY BRANCH, FORT SMITH, AR .....	.....	.....	.....	425	.....
PINE MOUNTAIN LAKE, AR .....	.....	.....	.....	.....	425
SOUTHWEST ARKANSAS, AR .....	.....	.....	.....	210	.....
WHITE RIVER BASIN COMPREHENSIVE, AR & MO .....	.....	.....	.....	250	.....
WHITE RIVER NAVIGATION TO BATESVILLE, AR .....	.....	.....	.....	170	.....
CALIFORNIA					
CALIFORNIA COASTAL SEDIMENT MASTER PLAN, CA .....	900	.....	.....	900	.....
CENTRAL VALLEY INTEGRATED FLOOD MANAGEMENT STUDY .....	.....	.....	.....	425	.....
COYOTE & BERRYESSA CREEKS, CA .....	.....	950	.....	.....	950
COYOTE DAM, CA .....	.....	.....	.....	100	.....
GRAYSON AND MURDERER'S WALNUT CREEK BASIN, CA .....	.....	.....	.....	100	.....
HAMILTON CITY, CA .....	.....	400	.....	.....	400
HUMBOLT BAY LONG-TERM SEDIMENT MANAGEMENT, CA .....	.....	.....	.....	130	.....
LOS ANGELES RIVER ECOSYSTEM RESTORATION, CA ...	.....	.....	.....	100	.....
LOS ANGELES RIVER WATERCOURSE, HEADWORKS, CA .....	.....	.....	.....	230	.....
LOWER CACHE CREEK, YOLO COUNTY, WOODLAND AND VICINITY, .....	.....	.....	.....	130	.....
LOWER MISSION CREEK, CA .....	.....	.....	.....	.....	250
MALIBU CREEK WATERSHED, CA .....	.....	.....	.....	100	.....
MIDDLE CREEK, CA .....	.....	.....	.....	.....	250
PAJARO RIVER, CA .....	.....	.....	.....	.....	425
REDWOOD CITY HARBOR, CA .....	.....	.....	.....	210	.....
RIVERSIDE COUNTY SAMP, CA .....	.....	.....	.....	221	.....
SACRAMENTO RIVER FLOOD CONTROL, GRR, CA (SYSTEMS EVALU) .....	.....	.....	.....	425	.....
SAC-SAN JOAQUIN DELTA ISLANDS AND LEVEES, CA ....	468	.....	.....	468	.....
SAN DIEGO COUNTY SAMP, CA .....	.....	.....	.....	100	.....
SAN DIEGO COUNTY SHORELINE, CA .....	.....	.....	.....	340	.....
SAN FRANCISQUITO CREEK, CA .....	.....	.....	.....	130	.....
SAN JOAQUIN RIVER BASIN [SJRB], FRAZIER CREEK/STRATHMO .....	.....	.....	.....	130	.....
SAN JOAQUIN RIVER BASIN, WEST STANISLAUS, ORESTIMBA CR .....	.....	.....	.....	370	.....
SAN JOAQUIN RIVER BASIN, LOWER SAN JOAQUIN RIVER, CA .....	.....	.....	.....	640	.....

## CORPS OF ENGINEERS—GENERAL INVESTIGATIONS—Continued

[In thousands of dollars]

Project title	Budget estimate		Committee recommendation		
	Investiga- tions	Planning	RECON	FEAS	PED
SAN JOAQUIN RIVER BASIN (SJR), WHITE RIVER/DRY CREEK, .....				130	
SANTA CLARA RIVER WATERSHED, CA .....				425	
SOLANA-ENCINITAS SHORELINE, CA .....	278			278	
SOUTH SAN FRANCISCO SHORELINE, CA .....				425	
ST. HELENA-NAPA RIVER, CA .....				170	
SUN VALLEY WATERSHED, CA .....				130	
SUTTER COUNTY, CA .....	339			339	
UPPER PENITENCIA CREEK, CA .....	386			386	
WESTMINSTER (EAST GARDEN GROVE) WATERSHED, CA .....				100	
WEST SACRAMENTO, CA .....				950	
COLORADO					
CACHE LA POUDE, CO .....				50	
SOUTH BOULDER CREEK, CO .....			82		
CONNECTICUT					
CONNECTICUT RIVER ECOSYSTEM RESTORATION, CT, MA, NH & .....				380	
DELAWARE					
RED CLAY CREEK, CHRISTINA RIVER WATERSHED, DE .....				264	36
FLORIDA					
FLAGLER COUNTY, FL .....				496	
INDIAN RIVER LAGOON NORTH, FL .....	150			150	
LAKE WORTH INLET, FL .....				100	
LIDO KEY, SARASOTA, FL (SARASOTA, LIDO KEY, FL) ....					340
MIAMI HARBOR, FL .....					510
MILE POINT, FL (JACKSONVILLE) .....				185	
PORT EVERGLADES HARBOR, FL .....	510			510	
WALTON COUNTY, FL .....					229
GEORGIA					
AUGUSTA, GA .....		278			278
OCMULGEE RIVER BASIN WATERSHED MANAGEMENT, GA .....	100				
SAVANNAH HARBOR EXPANSION, GA .....		1,000			
SAVANNAH RIVER BASIN COMPREHENSIVE, GA PH II ...					210
TYBEE ISLAND, GA .....	206			206	
GUAM					
HAGATNA RIVER FLOOD CONTROL .....	200			200	
HAWAII					
ALA WAI CANAL, OAHU, HI .....	175			408	
KALAELOA BARBERS POINT HARBOR MODIFICATION, HI .....				300	
MAALAE HARBOR, MAUI, HI .....					202
WAIAKEA-PALAI STREAMS, HI .....					300
WAILUPE STREAM, OAHU, HI .....				175	
WEST MAUI FEASIBILITY STUDY, HI .....				100	
ILLINOIS					
DES PLAINES RIVER, IL (PHASE II) .....	500			500	
ILLINOIS RIVER BASIN RESTORATION, IL .....	400			400	
INTERBASIN CONTROL OF GREAT LAKES, MISSISSIPPI RIVER A .....	300			300	

## CORPS OF ENGINEERS—GENERAL INVESTIGATIONS—Continued

[In thousands of dollars]

Project title	Budget estimate		Committee recommendation		
	Investiga- tions	Planning	RECON	FEAS	PED
PEORIA RIVERFRONT DEVELOPMENT, IL .....	.....	.....	.....	.....	50
PRAIRIE DUPONT LEVEE, IL .....	.....	.....	.....	209	255
S. FORK, SOUTH BRANCH, CHICAGO RIVER, (BUBBLY CREEK), .....	.....	.....	.....	100	.....
UPPER MISS-ILLINOIS WW SYSTEM, IL, IA, MN, MO & WI .....	.....	.....	.....	.....	9,000
UPPER MISS RIVER COMPREHENSIVE PLAN, IL, IA, MO, MN & .....	.....	.....	.....	640	.....
INDIANA					
INDIANA HARBOR, IN .....	.....	300	.....	.....	300
IOWA					
CEDAR RIVER TIME CHECK AREA, CEDAR RAPIDS, IA ..	.....	.....	.....	750	.....
HUMBOLT, IA .....	.....	.....	.....	130	.....
KANSAS					
MANHATTAN, KS .....	.....	.....	.....	255	.....
TOPEKA, KS .....	.....	100	.....	.....	250
UPPER TURKEY CREEK, KS .....	.....	.....	.....	.....	170
KENTUCKY					
GREEN RIVER WATERSHED, KY .....	200	.....	.....	.....	.....
LOUISIANA					
BAYOU SORREL LOCK, LA .....	.....	1,239	.....	.....	1,239
BOSSIER PARISH, LA .....	.....	.....	.....	150	.....
CALCASIEU LOCK, LA .....	1,000	.....	.....	1,000	.....
CALCASIEU RIVER AND PASS, LA .....	.....	.....	.....	675	.....
CALCASIEU RIVER BASIN, LA .....	.....	.....	.....	153	.....
CROSS LAKE, LA .....	.....	.....	.....	100	.....
LOUISIANA COASTAL AREA ECOSYSTEM RESTORATION, LA .....	25,000	.....	.....	23,000	.....
LOUISIANA COASTAL PROTECTION & RESTORATION [LACPR], LA .....	3,000	.....	.....	3,000	.....
PLAQUEMINES PARISH, LA .....	.....	.....	.....	.....	107
PORT OF IBERIA, LA .....	.....	.....	.....	.....	1,000
ST. CHARLES PARISH URBAN FLOOD CONTROL, LA .....	.....	.....	.....	391	.....
SOUTHWEST COASTAL LOUISIANA HURRICANE PROTEC- TION, LA .....	.....	.....	.....	425	.....
WEST SHORE, LAKE PONTCHARTRAIN, LA .....	.....	.....	.....	425	.....
MARYLAND					
ANACOSTIA RIVER AND TRIBUTARIES COMPREHENSIVE PLAN, MD .....	.....	.....	.....	321	.....
BALTIMORE METRO WATER RESOURCES—PATAPSCO URBAN RIVER .....	.....	.....	.....	100	.....
CHESAPEAKE BAY SHORELINE, MARYLAND COASTAL MANAGEMENT, .....	.....	.....	.....	170	.....
CHESAPEAKE BAY SUSQUEHANNA RESERVOIR SEDI- MENT MANAGEMET .....	.....	.....	143	57	.....
EASTERN SHORE, MID-CHESAPEAKE BAY ISLAND, MD ..	.....	250	.....	.....	483
MIDDLE POTOMAC COMP PLAN, MD, VA, PA, WV, DC ...	.....	.....	.....	255	.....
MIDDLE POTOMAC WATERSHED, GREAT SENECA CREEK AND MUDDY .....	.....	.....	.....	255	.....
SUSQUEHANNA RIVER BASIN LOW FLOW MANAGEMENT AND ENVIRO .....	.....	.....	.....	130	.....
MASSACHUSETTS					
BOSTON HARBOR (45-FOOT CHANNEL), MA .....	.....	500	.....	.....	500

## CORPS OF ENGINEERS—GENERAL INVESTIGATIONS—Continued

[In thousands of dollars]

Project title	Budget estimate		Committee recommendation		
	Investiga- tions	Planning	RECON	FEAS	PED
PILGRIM LAKE, TRURO & PROVINCETOWN, MA .....	100	.....	.....	100	.....
MICHIGAN					
GREAT LAKES NAV SYST STUDY, MI, IL, IN, MN, NY, OH, PA .....	400	.....	.....	400	.....
GREAT LAKES REMEDIAL ACTION PLANS (RAP), MI .....	.....	.....	.....	850	.....
LANSING, GRAND RIVER WATERFRONT RESTORATION, MI .....	.....	.....	.....	215	.....
MINNESOTA					
MINNEHAHA CREEK WATERSHED, MN .....	.....	.....	.....	215	.....
MINNESOTA RIVER WATERSHED STUDY, MN & SD .....	350	.....	.....	350	.....
WILD RICE RIVER, RED RIVER OF THE NORTH BASIN, MN .....	271	.....	.....	271	.....
MISSISSIPPI					
PEARL RIVER WATERSHED, MS .....	.....	.....	.....	200	.....
MISSOURI					
BRUSH CREEK BASIN, KS & MO .....	.....	.....	.....	.....	242
KANSAS CITYS, MO & KS .....	224	.....	.....	224	.....
MISSOURI RIVER DEGRADATION, MO & KS .....	600	.....	.....	600	.....
MISSOURI RIVER LEVEE SYSTEM, UNITS L455 & R460—471, MO .....	.....	.....	.....	.....	340
RIVER DES PERES, MO .....	.....	.....	.....	.....	100
ST. LOUIS, MO (WATERSHED) .....	400	.....	.....	.....	.....
MONTANA					
YELLOWSTONE RIVER CORRIDOR, MT .....	200	.....	.....	200	.....
NEW HAMPSHIRE					
MERRIMACK RIVER WATERSHED STUDY, NH & MA .....	200	.....	.....	200	.....
NEW JERSEY					
DELAWARE RIVER COMPREHENSIVE, NJ .....	290	.....	.....	290	.....
HUDSON—RARITAN ESTUARY, HACKENSACK MEADOWLANDS, NJ .....	200	.....	.....	200	.....
HUDSON—RARITAN ESTUARY, LOWER PASSAIC RIVER, NJ .....	200	.....	.....	200	.....
LOWER SADDLE RIVER, BERGEN COUNTY, NJ .....	.....	.....	.....	.....	255
NEW JERSEY SHORE PROECTION, HEREFORD TO CAPE MAY INLET .....	.....	.....	.....	130	.....
NEW JERSEY SHORELINE ALTERNATIVE LONG-TERM NOURISHMENT .....	.....	.....	.....	110	.....
PASSAIC RIVER MAIN STEM, NJ .....	.....	.....	.....	.....	215
PASSAIC RIVER, HARRISON, NJ .....	.....	.....	.....	.....	215
PECKMAN RIVER BASIN, NJ .....	.....	.....	.....	300	.....
RAHWAY RIVER BASIN, NJ .....	.....	.....	.....	255	.....
RARITAN BAY AND SANDY HOOK BAY, HIGHLANDS, NJ .....	.....	.....	.....	255	.....
RARITAN BAY AND SANDY HOOK BAY, LEONARDO, NJ ..	.....	.....	.....	.....	25
RARITAN BAY AND SANDY HOOK BAY, UNION-BEACH, NJ .....	.....	.....	.....	.....	110
SHREWSBURY RIVER AND TRIBUTARIES, NJ .....	511	.....	.....	511	.....
SOUTH RIVER, RARITAN RIVER BASIN, NJ .....	.....	.....	.....	.....	215
STONY BROOK, MILLSTONE RIVER BASIN, NJ .....	.....	.....	.....	110	.....
NEW MEXICO					
ESPANOLA VALLEY, NM .....	.....	.....	.....	150	.....
RIO GRANDE BASIN, NM, CO & TX .....	.....	.....	.....	120	.....

## CORPS OF ENGINEERS—GENERAL INVESTIGATIONS—Continued

[In thousands of dollars]

Project title	Budget estimate		Committee recommendation		
	Investiga- tions	Planning	RECON	FEAS	PED
SANTA FE, NM .....				228	
NEW YORK					
BRONX RIVER BASIN, NY .....				130	
BUFFALO RIVER ENVIRONMENTAL DREDGING, NY .....	100			100	
HASHAMOMUCK COVE, SOUTHOLD, NY .....	200			200	
HUDSON—RARITAN ESTUARY, NY & NJ .....				170	
JAMAICA BAY, MARINE PARK AND PLUMB BEACH NY ...	200			200	
LAKE MONTAUK HARBOR, NY .....				441	
MONTAUK POINT, NY .....					255
NIAGARA RIVER WATERSHED, NY .....			104		
ONONDAGA LAKE, NY .....				215	
UPPER DELAWARE RIVER WATERSHED, FLOODPLAIN RECONNECTION .....				130	
UPPER DELAWARE RIVER WATERSHED, LIVINGSTON MANOR, NY .....				170	
NEVADA					
TRUCKEE MEADOWS, NV .....					10,000
NORTH CAROLINA					
BOGUE BANKS, NC .....				135	
CURRITUCK SOUND, NC .....	150			150	
NEUSE RIVER BASIN, NC .....		200			200
NORTH CAROLINA INTERNATIONAL PORT, NC .....			104	170	
SURF CITY AND NORTH TOPSAIL BEACH, NC .....				17	170
NORTH DAKOTA					
MISSOURI RIVER, ND, MT, SD, NE, IA, KS, MO .....				5,500	
RED RIVER OF THE NORTH BASIN, MN, ND, SD AND MANITOBA, .....	150			3,050	
OHIO					
HOCKING RIVER BASIN, MONDAY CREEK, OH .....					437
MAHONING RIVER ENVIRONMENTAL DREDGING, OH .....					640
WESTERN LAKE ERIE BASIN, OH, IN, & MI .....				340	
OKLAHOMA					
GRAND (NEOSHO) RIVER BASIN WATERSHED, OK, MO, KS .....				162	
OOLOGAH LAKE WATERSHED, KS AND OK .....				135	
SOUTHEAST OKLAHOMA WATER RESOURCE STUDY, OK .....				255	
WASHITA RIVER BASIN, OK .....				215	
OREGON					
AMAZON CREEK, OR .....				320	
WALLA WALLA RIVER WATERSHED, OR & WA .....	203			203	
WILLAMETTE RIVER ENVIRONMENTAL DREDGING, OR ...				215	
WILLAMETTE RIVER FLOODPLAIN RESTORATION, OR ....		240			240
PENNSYLVANIA					
BLOOMSBURG, PA .....				130	
DELAWARE RIVER BASIN, PINE KNOT, PA .....				130	
DELAWARE RIVER DREDGED MATERIAL UTILIZATION, PA, DE & .....			81	85	
SCHUYLKILL RIVER BASIN, WISSAHICKON, PA .....				214	
UPPER OHIO NAVIGATION STUDY, PA .....				1,700	
SOUTH CAROLINA					
EDISTO ISLAND, SC .....	167			167	

## CORPS OF ENGINEERS—GENERAL INVESTIGATIONS—Continued

[In thousands of dollars]

Project title	Budget estimate		Committee recommendation		
	Investiga- tions	Planning	RECON	FEAS	PED
REEDY RIVER, SC .....	.....	.....	.....	170	.....
SOUTH DAKOTA					
JAMES RIVER, SD & ND .....	.....	.....	.....	200	.....
WATERTOWN AND VICINITY, SD .....	.....	.....	.....	.....	448
TENNESSEE					
MILL CREEK WATERSHED, DAVIDSON COUNTY, TN .....	50	.....	.....	50	.....
TEXAS					
ABILENE, TX (BRAZOS RIVER BASIN—ELM CREEK) .....	.....	.....	.....	190	.....
BRAZOS ISLAND HARBOR, BROWNSVILLE CHANNEL, TX .....	526	.....	.....	526	.....
DALLAS FLOODWAY, UPPER TRINITY RIVER BASIN, TX ..	.....	.....	.....	2,125	.....
FREEPORT HARBOR, TX .....	675	.....	.....	675	.....
GIWW, HIGH ISLAND TO BRAZOS RIVER REALIGN- MENTS, TX .....	200	.....	.....	200	.....
GUADALUPE AND SAN ANTONIO RIVER BASINS, TX .....	423	.....	.....	423	.....
LOWER COLORADO RIVER BASIN, TX .....	425	.....	.....	425	.....
NUECES RIVER AND TRIBUTARIES, TX .....	250	.....	.....	250	.....
RIO GRANDE BASIN, TX .....	304	.....	.....	304	.....
SABINE-NECHES WATERWAY, TX .....	.....	.....	.....	170	.....
SABINE PASS TO GALVESTON BAY, TX .....	200	.....	.....	200	.....
SPARKS ARROYO COLONIA, EL PASO COUNTY, TX .....	.....	.....	.....	143	.....
VERMONT					
MONTPELIER, VT .....	.....	.....	.....	239	.....
VIRGINIA					
CLINCH RIVER WATERSHED, VA .....	.....	.....	.....	130	.....
CHOWAN RIVER BASIN, VA .....	.....	.....	.....	215	.....
DISMAL SWAMP AND DISMAL SWAMP CANAL, VA .....	.....	.....	.....	78	.....
FOUR MILE RUN, VA .....	.....	.....	.....	100	.....
GATHRIGHT DAM AND LAKE MOOMAW, VA .....	.....	.....	.....	255	.....
JOHN H. KERR DAM AND RESERVOIR, VA & NC (SEC- TION 216) .....	300	.....	.....	300	.....
LYNNHAVEN RIVER BASIN, VA .....	112	.....	.....	112	.....
NEW RIVER, CLAYTOR LAKE, VA .....	.....	.....	.....	90	.....
UPPER RAPPAHANNOCK RIVER, VA (PHASE II) .....	.....	.....	.....	170	.....
VICINITY OF WILLOUGHBY SPIT, VA .....	.....	.....	.....	243	.....
WASHINGTON					
CENTRALIA, WA .....	.....	.....	.....	1,000	.....
CHEHALIS RIVER BASIN, WA .....	.....	.....	.....	1,000	.....
ELLIOTT BAY SEAWALL, WA .....	.....	.....	.....	255	.....
LOWER COLUMBIA RIVER ECOSYSTEM RESTORATION, WA & OR .....	300	.....	.....	300	.....
PUGET SOUND NEARSHORE MARINE HABITAT RES- Toration, WA .....	400	.....	.....	400	.....
PUYALLUP RIVER, WA .....	250	.....	.....	250	.....
SKAGIT RIVER, WA .....	.....	.....	.....	550	.....
SKOKOMISH RIVER BASIN, WA .....	.....	.....	.....	300	.....
STILLAGUAMISH RIVER ECOSYSTEM RESTORATION, WA .....	.....	.....	.....	.....	130
WEST VIRGINIA					
CHERRY RIVER BASIN, WV .....	.....	.....	.....	600	.....
OHIO RIVER BASIN COMPREHENSIVE STUDY, WV, KY, OH, PA .....	.....	.....	.....	2,000	.....
UPPER GUYANDOTTE, WV .....	.....	.....	.....	300	.....

## CORPS OF ENGINEERS—GENERAL INVESTIGATIONS—Continued

[In thousands of dollars]

Project title	Budget estimate		Committee recommendation		
	Investiga- tions	Planning	RECON	FEAS	PED
WELLS LOCK AND DAM, LITTLE KANAWHA RIVER, WV (LITTLE K) .....	.....	.....	.....	40	.....
SUBTOTAL FOR PROJECTS .....	44,468	6,115	514	85,028	32,439
NATIONAL PROGRAMS					
COORDINATION STUDIES WITH OTHER AGENCIES .....	.....	.....	.....	.....	.....
ACCESS TO WATER DATA (TECH ASSIST) .....	750	.....	.....	750	.....
COMMITTEE ON MARINE TRANSPORTATION SYSTEMS ...	100	.....	.....	100	.....
OTHER COORDINATION PROGRAMS .....	4,330	.....	.....	4,730	.....
LAKE TAHOE .....	(100)	.....	.....	(500)	.....
PLANNING ASSISTANCE TO STATES: .....	7,000	.....	.....	8,051	.....
ARIZONA DEPARTMENT OF WATER RESOURCES,					
AZ .....	(150)	.....	.....	(150)	.....
CITY OF LOS ANGELES, CA .....	(150)	.....	.....	(150)	.....
CITY OF PALMDALE, CA .....	(75)	.....	.....	(75)	.....
LOS ANGELES COUNTY, CA .....	(150)	.....	.....	(150)	.....
SAN BERNADINO COUNTY, CA .....	(150)	.....	.....	(150)	.....
SAN MANUEL BAND OF INDIANS, CA .....	(66)	.....	.....	(66)	.....
SOBOBA BAND OF INDIANS, CA .....	(75)	.....	.....	(75)	.....
WEST CANAL/WILLOW BROOK FLOOD MANAGE- MENT STU .....	(20)	.....	.....	(20)	.....
DELAWARE ESTUARY SALINITY MONITORING STUDY, .....	.....	.....	.....	(200)	.....
SOUTH BETHANY TIDAL PUMP SYSTEM STUDY, DE .....	(150)	.....	.....	(150)	.....
EFFINGHAM COUNTY STORM WATER MANAGE- MENT PLAN .....	(60)	.....	.....	(60)	.....
NORTHWEST GA WATERSHEAD, GA .....	(100)	.....	.....	(100)	.....
HAWAII DOT GIS, HI .....	.....	.....	.....	(100)	.....
HAWAII WATER RESOURCES MANAGEMENT, HI .....	.....	.....	.....	(270)	.....
RAINFALL ATLAS OF HAWAII, STATE OF HAWAII AN .....	.....	.....	.....	(100)	.....
WAIMANALO WASTEWATER EFFLUENT REUSE PLAN, ST .....	.....	.....	.....	(67)	.....
STATE OF HAWAII GENERAL FLOOD CONTROL PLAN U .....	.....	.....	.....	(1,000)	.....
BOYER RIVER, MISSOURI VALLEY, IA .....	.....	.....	.....	(36)	.....
NISHNABOTNA WATERSHED, IA .....	(341)	.....	.....	(200)	.....
WILLOW CREEK, IA .....	(45)	.....	.....	(45)	.....
BIG WOOD RIVER—BELVUE .....	.....	.....	.....	.....	.....
IDAHO, ID .....	(25)	.....	.....	(25)	.....
WEISER R. FLOODPLAIN ANALYSIS, ID .....	(50)	.....	.....	(50)	.....
LAKE COUNTY WETLANDS RESTORATION, IL .....	.....	.....	.....	(200)	.....
KS RIVER WATER RESOURCES, KS .....	(50)	.....	.....	(50)	.....
PAS TRIBAL SUPPORT, KS .....	(50)	.....	.....	(50)	.....
BARDSTOWN, KY .....	(88)	.....	.....	(88)	.....
LOUISVILLE PARKS, KY .....	(100)	.....	.....	(100)	.....
CHITIMACHA WATERSHED PLANNING, LA .....	(150)	.....	.....	(150)	.....
NEW ORLEANS RIVER PARK, LA .....	(100)	.....	.....	(100)	.....
PORT OF LAKE CHARLES MASTER PLAN, LA .....	(125)	.....	.....	(125)	.....
RIVER PARISHES PEDESTRIAN PLAN, LA .....	(125)	.....	.....	(125)	.....
ST. JOHNS PARISH MONUMENTATION, LA .....	(125)	.....	.....	(125)	.....
TUNICA RECREATION TRAIL, TUNICA-BILOXI TRIBE .....	(125)	.....	.....	(125)	.....
PENN'S HILL DRAINAGE STUDY, QUINCY, MA .....	(10)	.....	.....	(10)	.....
TOWN LINE BROOK DRAINAGE ASSESSMENT, MALDEN, .....	(10)	.....	.....	(10)	.....
MONTGOMERY COUNTY, MD .....	(20)	.....	.....	(20)	.....

## CORPS OF ENGINEERS—GENERAL INVESTIGATIONS—Continued

[In thousands of dollars]

Project title	Budget estimate		Committee recommendation		
	Investiga- tions	Planning	RECON	FEAS	PED
MACOMB COUNTY DRAIN MAPPING & DATABASE, MI .....	(200)	.....	.....	(200)	.....
STREAM CHARACTERISTICS STUDY FOR SAGANING RI .....	(80)	.....	.....	(80)	.....
CHOCTAW COUNTY RESERVOIR, MS .....	.....	.....	.....	(100)	.....
CAPE GIRARDEAU GROUNDWATER STUDY, MO .....	(75)	.....	.....	(75)	.....
CITY OF MARQUAND FLOOD STUDY, MO .....	(50)	.....	.....	(50)	.....
PAS MO MDNR NORTHWEST MISSOURI, MO .....	(50)	.....	.....	(50)	.....
PERUQUE CREEK WATER QUALITY, MO .....	(30)	.....	.....	(30)	.....
ST. CHARLES RIVERFRONT MICRO-MODEL, MO .....	(90)	.....	.....	(90)	.....
HENRY R. DAM, BURKE, CO., NC .....	(48)	.....	.....	(48)	.....
GOOCHS MILL, GRNAVILLE, CO., NC .....	(25)	.....	.....	(25)	.....
FONTENELLE/BELLEVUE, NE .....	(40)	.....	.....	(40)	.....
SPICKET RIVER WATERSHED STUDY, NH .....	(55)	.....	.....	(55)	.....
GRANTS DRAINAGE MANAGEMENT PLAN, NM .....	(56)	.....	.....	(56)	.....
TARRYTOWN, NY .....	(10)	.....	.....	(10)	.....
TOWN OF CLARENCE, NY .....	(80)	.....	.....	(80)	.....
WAPPINGERS FALLS, NY .....	(10)	.....	.....	(10)	.....
HARPERSFIELD DAM, GRAND RIVER, OH .....	(88)	.....	.....	(88)	.....
STATE OF OHIO GIS, OH .....	(75)	.....	.....	(75)	.....
OKLAHOMA COMP WATER PLAN, OK .....	.....	.....	.....	(500)	.....
PAS BOONE NUTE SLOUGH, OR .....	(27)	.....	.....	(27)	.....
PAS CITY OF MEDFORD FLOODPLAIN, OR .....	(60)	.....	.....	(60)	.....
PAS NEHALEM RIVER ODOT FLOOD MAPPING, OR .....	(200)	.....	.....	(200)	.....
PAS PORTLAND BALANCED CUT AND FILL STUDY, OR .....	(35)	.....	.....	(35)	.....
PAS TOUTLE RIVER RADIO TRACKING, OR .....	(30)	.....	.....	(30)	.....
ALLEGHENY CO AQUATIC ASSESSMENT STUDY, PA .....	(50)	.....	.....	(50)	.....
NORTHERN ALLEGHENY CO STORMWATER MANGT STUDY .....	(25)	.....	.....	(25)	.....
PENNSYLVANIA FLOOD INUNDATION MAPPING, PA .....	(100)	.....	.....	(100)	.....
SW PA SPILL RESPONSE STUDY, PA .....	(50)	.....	.....	(50)	.....
USS YORKTOWN, SC .....	(75)	.....	.....	(75)	.....
KINGSPORT RIVERFRONT, TN .....	(75)	.....	.....	(75)	.....
TN DEPT OF ENV AND CONSERV PILOT STUDY— WTR .....	(200)	.....	.....	(200)	.....
CHARLOTTESVILLE WATER QUALITY MANAGE- MENT, VA .....	(40)	.....	.....	(40)	.....
JAMES CITY SURRY NON-STRUCTURAL, VA .....	(35)	.....	.....	(35)	.....
STORM WATER MANAGEMENT PLAN FOR COASTAL COMM .....	.....	.....	.....	(220)	.....
VIRGINIA DEPARTMENT OF TRANSPORTATION, VA .....	(114)	.....	.....	(114)	.....
WILLIAMSBURG STORMWATER MANAGEMENT, VA .....	(25)	.....	.....	(25)	.....
SOUTH BURLINGTON, VT .....	(50)	.....	.....	(50)	.....
CLOVER ISLAND—PORT OF KENEWICK, WA .....	(25)	.....	.....	(25)	.....
ELWHA RIVER, WA .....	(50)	.....	.....	(50)	.....
HALF MOON LAKE ALUM DOSING STUDY, WI .....	(30)	.....	.....	(30)	.....
INTERNAL PHOSPHORUS LOADING ASSESSMENT STUDY .....	(31)	.....	.....	(31)	.....
ONEIDA NATION FLOODPLAIN DELINEATION, WI .....	(250)	.....	.....	(250)	.....
CITY OF RAVENWOOD, WV .....	(25)	.....	.....	(25)	.....
PUTNAM COUNTY DRAINAGE, WV .....	(50)	.....	.....	(50)	.....
COLLECTION AND STUDY OF BASIC DATA AUTOMATED INFORMATION SYSTEMS SUPPORT TRI- CADD .....	350	.....	.....	350	.....



## CORPS OF ENGINEERS—GENERAL INVESTIGATIONS—Continued

[In thousands of dollars]

Project title	Budget estimate		Committee recommendation		
	Investiga- tions	Planning	RECON	FEAS	PED
COASTAL FIELD DATA COLLECTION .....	1,400	.....	.....	6,000	.....
COASTAL DATA INFORMATION PROGRAM .....	.....	.....	.....	(1,000)	.....
PACIFIC ISLAND LAND OCEAN TYPHOON EXPERI- MENT .....	.....	.....	.....	(1,000)	.....
SURGE AND WAVE ISLAND MODELING STUDIES, HI .....	.....	.....	.....	(1,250)	.....
ENVIRONMENTAL DATA STUDIES .....	75	.....	.....	75	.....
FLOOD DAMAGE DATA .....	220	.....	.....	220	.....
FLOOD PLAIN MANAGEMENT SERVICES .....	8,000	.....	.....	13,200	.....
MOBILE DISTRICT HURRICANE EVACUATION STUDIES .....	(50)	.....	.....	(50)	.....
SPECIAL STUDY—CROWABOUT CREEK, AL .....	(81)	.....	.....	(81)	.....
SS—SFHE MONTGOMERY AL, LITTLE SANDY CREEK, .....	(40)	.....	.....	(40)	.....
SS—BEAVER/CLEAR CREEKS, CAMP VERDE, AZ .....	(100)	.....	.....	(100)	.....
SS—COCHISE COUNTY, AZ .....	(100)	.....	.....	(100)	.....
SS—GILA RIVER/DUNCAN, AZ .....	(100)	.....	.....	(100)	.....
SS—HOPI TRIBE FLOODPLAIN MAPPING, AZ .....	(100)	.....	.....	(100)	.....
SS—TOHONO O'ODHAM GU VO WASH, AZ .....	(95)	.....	.....	(95)	.....
SS—TOHONO O'ODHAM NATIONWIDE FLOOD- PLAIN .....	(250)	.....	.....	(250)	.....
HUMBOLDT COUNTY, CA TSUNAMI PAS, CA .....	(500)	.....	.....	(500)	.....
RAYMOND BASIN CONJUNCTIVE USE DROUGHT STUDY .....	(125)	.....	.....	(125)	.....
SAN MATEO COUNTY, CA LEVEE SURVEY, CA .....	(30)	.....	.....	(30)	.....
SS—ANAVERDE CREEK FLOODPLAIN DELINEA- TION, .....	(100)	.....	.....	(100)	.....
SS—SOBOBA BAND OF INDIANS FLOOD MAP- PING, .....	(100)	.....	.....	(100)	.....
CARBON COUNTY, CO .....	(50)	.....	.....	(50)	.....
DURANGO, LAPLATA COUNTY, CO .....	(60)	.....	.....	(60)	.....
GREEN RIVER CITY, CO .....	(80)	.....	.....	(80)	.....
LA PLATA COUNTY, CO .....	(50)	.....	.....	(50)	.....
MESA COUNTY, CO .....	(50)	.....	.....	(50)	.....
FLOOD/HURRICANE EVACUATION, DC .....	(100)	.....	.....	(100)	.....
WHITE CLAY CREEK, NEW CASTLE, DE .....	.....	.....	.....	(200)	.....
SAVANNAH DISTRICT HURRICANE EVAC STUDIES, G .....	(40)	.....	.....	(40)	.....
SS—GA CLARKSVILLE STREAM SURVEY, GA .....	(20)	.....	.....	(20)	.....
ANAHOLA FLOOD HAZARD STUDY, KAUAI, HI .....	(150)	.....	.....	(150)	.....
HAWAII TECHNICAL SERVICES, HI .....	.....	.....	.....	(40)	.....
HURRICANE EVACUATION STUDIES, HAWAII .....	.....	.....	.....	(1,000)	.....
KALUANUI STREAM FLOOD HAZARD DETERMINA- TION, .....	(150)	.....	.....	(150)	.....
NUUANU RESERVOIR FLOOD STUDY, HI .....	(150)	.....	.....	(150)	.....
WAIMEA RIVER ZONE A FLOOD DETERMINATION, KA .....	(185)	.....	.....	(185)	.....
WAIHOLI GULCH FLOOD HAZARD STUDY, KULA, MA .....	(200)	.....	.....	(200)	.....
IOWA MULTI-STATE DAM SAFETY ANALYSES, IA ...	.....	.....	.....	(37)	.....
LITTLE SIOUX WATERSHED, IA .....	.....	.....	.....	(50)	.....
MON-MAQ DAM REMOVAL STUDY & LOCAL FLOODPLAIN .....	.....	.....	.....	(120)	.....
SS—EVALUATION OF FLOODING SCENARIOS, IA ..	(120)	.....	.....	(120)	.....
SS—REGULATED FREQUENCY CURVES .....	(150)	.....	.....	(150)	.....
SS BOULDER CREEK DONNELLY, ID .....	(35)	.....	.....	(35)	.....
SS WARM SPRINGS CREEK VIC OF CHALLIS, ID ...	(38)	.....	.....	(38)	.....
SS WARM SPRINGS CREEK VIC OF KETCHUM, ID .....	(45)	.....	.....	(45)	.....

## CORPS OF ENGINEERS—GENERAL INVESTIGATIONS—Continued

[In thousands of dollars]

Project title	Budget estimate		Committee recommendation		
	Investiga- tions	Planning	RECON	FEAS	PED
SS—IL LEVEES EVALUATION SUPPORT, IL .....	(250)	.....	.....	(250)	.....
WILL COUNTY SURVEY, IL .....	(400)	.....	.....	(400)	.....
NODAWAY COUNTY BRIDGE STUDY, KS .....	(50)	.....	.....	(50)	.....
CHITIMACHA TRIBE OF LA, [GIS] .....	.....	.....	.....	(250)	.....
CITY OF ALEXANDRIA, LA [GIS] .....	.....	.....	.....	(200)	.....
EAST BATON ROUGE PARISH, LA [GIS] .....	.....	.....	.....	(1,200)	.....
HURRICANE EVACUATION STUDY, SE LOUISIANA UP .....	(100)	.....	.....	(100)	.....
LIVINGSTON PARISH, LA [GIS] .....	.....	.....	.....	(350)	.....
SS—CITY OF GRETN A GIS, LA .....	(200)	.....	.....	(200)	.....
SS—EAST BATON ROUGE GIS, LA .....	(450)	.....	.....	(450)	.....
SS—LIVINGSTON PARISH GIS, LA .....	(650)	.....	.....	(650)	.....
CLAY PIT BROOK FLOODING STUDY, MA .....	(25)	.....	.....	(25)	.....
HOOSC RIVER FLOOD MITIGATION STUDY, CHESHI .....	(10)	.....	.....	(10)	.....
SAW MILL BROOK FLOOD STUDY, NEWTON, MA ...	(10)	.....	.....	(10)	.....
SPEAR BROOK FLOOD CONTROL STUDY, WILBRAHAM, .....	(10)	.....	.....	(10)	.....
HURRICANE EVACUATION STUDIES, MD .....	(50)	.....	.....	(50)	.....
AUTRAIN RIVER SCOUR STUDY, MI .....	(75)	.....	.....	(75)	.....
FLOODPLAIN MANAGEMENT TRAINING, MO .....	(30)	.....	.....	(30)	.....
SS—LINCOLN COUNTY, MO .....	(150)	.....	.....	(150)	.....
JORDAN, MT .....	(80)	.....	.....	(80)	.....
NASHUA FLOOD RISK ASSESSMENT, MT .....	(55)	.....	.....	(55)	.....
NORTH CAROLINA HES RESTUDY, NC .....	(50)	.....	.....	(50)	.....
BEAVER & BLACK BROOKS FLOODING STUDY, LOND .....	(25)	.....	.....	(25)	.....
FLOODPLAIN MAPS FOR MANALAPAN AND MATCHAPON .....	.....	.....	.....	(500)	.....
SS—MANALAPAN BROOK, NJ .....	(110)	.....	.....	(110)	.....
ELBOW CREEK, NY .....	(60)	.....	.....	(60)	.....
FORECAST STUDIES, NY .....	(50)	.....	.....	(50)	.....
HURRICANE EVACUATION STUDIES, NY .....	(50)	.....	.....	(50)	.....
ONONDAGA CREEK, SYRACUSE, NY .....	(100)	.....	.....	(100)	.....
SPECIAL STUDY—FINGER LAKES, NY .....	(100)	.....	.....	(100)	.....
NEW JERSEY—PORT AUTHORITY STUDY UPDATE, N .....	(180)	.....	.....	(180)	.....
SPECIAL STUDY—CRAWFORD COUNTY, OH .....	(100)	.....	.....	(100)	.....
SS CITY OF JOHN DAY, OR .....	(160)	.....	.....	(160)	.....
SS CROOKED RIVER FIS (CITY OF PRINEVILLE), ...	(140)	.....	.....	(140)	.....
SS JUNIPER CANYON FIS (CITY OF PRINEVILLE), ...	(137)	.....	.....	(137)	.....
SS WAHIAKUM CO FIS #1 (GRAY'S RIVER), OR ...	(155)	.....	.....	(155)	.....
SS WAHIAKUM CO FIS #2 (ELOCHOMAN RIVER), OR .....	(130)	.....	.....	(130)	.....
SS WAHIAKUM CO FIS #3 (WILSON CREEK), OR .....	(128)	.....	.....	(128)	.....
SS WAHIAKUM CO FIS #4 (SKAMOKAWA CREEK), OR .....	(128)	.....	.....	(128)	.....
PHILADELPHIA HURRICANE EVACUATION STUDY, P .....	(10)	.....	.....	(10)	.....
SOUTHEASTERN, PA .....	(250)	.....	.....	(250)	.....
PUERTO RICO HES BEHAVIOR STUDY, PR .....	(112)	.....	.....	(112)	.....
SOUTH CAROLINA HES RESTUDY, SC .....	(50)	.....	.....	(50)	.....
SS—CITY OF GALLATIN, TN .....	(85)	.....	.....	(85)	.....
UNINCORPORATED WEBER CO., UT .....	(50)	.....	.....	(50)	.....
CITY OF GALAX, VA .....	(100)	.....	.....	(100)	.....
SS—TOWN OF ABINGDON, VA .....	(56)	.....	.....	(56)	.....
DAM BREAK STUDIES, VT .....	(31)	.....	.....	(31)	.....
EAST LONG POND DAM, VT .....	(50)	.....	.....	(50)	.....
LAKE HARDWICK DAM, VT .....	(50)	.....	.....	(50)	.....

## CORPS OF ENGINEERS—GENERAL INVESTIGATIONS—Continued

[In thousands of dollars]

Project title	Budget estimate		Committee recommendation		
	Investiga- tions	Planning	RECON	FEAS	PED
MACKVILLE POND DAM, VT .....	(50)	.....	.....	(50)	.....
NICHOLS POND DAM, VT .....	(50)	.....	.....	(50)	.....
RUGG BROOKS, ST. ALBANS CITY, VT .....	(75)	.....	.....	(75)	.....
SS—STEVENS BROOKS, TOWN OF ST. ALBANS, VT .....	(75)	.....	.....	(75)	.....
SS—VERMONT, VT .....	(25)	.....	.....	(25)	.....
WARREN LAKE DAM, VT .....	(50)	.....	.....	(50)	.....
SS LIND COULEE, VICINITY OF LIND, WA .....	(35)	.....	.....	(35)	.....
SS MCCOY CREEK, VICINITY OF OAKESDALE, WA .....	(67)	.....	.....	(67)	.....
BEAR RIVER STUDY—UINTA CO., WY .....	(140)	.....	.....	(140)	.....
HYDROLOGIC STUDIES .....	250	.....	.....	250	.....
INTERNATIONAL WATER STUDIES .....	200	.....	.....	200	.....
PRECIPITATION STUDIES (NATIONAL WEATHER SERV- ICE) .....	225	.....	.....	225	.....
REMOTE SENSING/GEOGRAPHICAL INFORMATION SYS- TEM SUPPORT .....	150	.....	.....	150	.....
SCIENTIFIC AND TECHNICAL INFORMATION CENTERS ...	50	.....	.....	50	.....
STREAM GAGING (U.S. GEOLOGICAL SURVEY) .....	600	.....	.....	600	.....
TRANSPORTATION SYSTEMS .....	350	.....	.....	350	.....
RESEARCH AND DEVELOPMENT .....	16,892	.....	.....	25,392	.....
SUBMERGED AQUATIC VEGETATION, MD .....	.....	.....	.....	(1,000)	.....
URBAN FLOOD DEMONSTRATION PROGRAM, DRI, NV .....	.....	.....	.....	(2,500)	.....
OTHER—MISC .....	.....	.....	.....	.....	.....
FLOOD RISK MANAGEMENT .....	2,000	.....	.....	2,000	.....
INDEPENDENT PEER REVIEW .....	1,000	.....	.....	1,000	.....
NATIONAL SHORELINE .....	375	.....	.....	750	.....
PLANNING SUPPORT PROGRAM .....	2,100	.....	.....	2,100	.....
TRIBAL PARTNERSHIP PROGRAM .....	1,000	.....	.....	1,000	.....
WATER RESOURCES PRIORITIES STUDY .....	2,000	.....	.....	.....	.....
SUBTOTAL, NATIONAL PROGRAMS .....	49,417	.....	.....	69,223	.....
TOTAL .....	93,885	6,115	514	154,251	32,439
SAVINGS AND SLIPPAGE .....	.....	.....	.....	— 17,224	.....
GRAND TOTAL .....	100,000	.....	.....	170,000	.....

*Homer Harbor Modification, Alaska.*—The Committee recommends \$340,000 to continue feasibility studies. A new harbor basin would not only reduce existing overcapacity and congestion, but would also enable Port and Harbor of Homer to accommodate the growth in the use of Homer by the commercial fleet.

*Valdez Harbor Expansion, Alaska.*—The Committee recommendation includes \$385,000 for preconstruction engineering and design studies. Rafting during the commercial fishing season has been reported up to eight boats deep on a regular basis. The problem is highly seasonal, requiring a large need for transient space primarily during the summer months.

*Central Valley Integrated Flood Management Study, California.*—The Committee recommends \$425,000 for this feasibility study. The State of California has requested that the Corps update the original Sacramento-San Joaquin Basin Comprehensive Study. These

studies will be muted to prepare a comprehensive system approach to flood management for the Central Valley.

*Riverside County SAMP and San Diego County SAMP, California.*—The Committee recommendation includes funding to complete these Special Area Management Plans. The SAMPs will result in a streamlined section 404 process, which will generate general and individual permits.

*West Sacramento, California.*—The Committee recommendation includes \$950,000 to continue the general re-evaluation of the levee system.

*Red Clay Creek, Christina River Watershed, Delaware.*—The Committee recommends \$264,000 for the final screening of alternatives, selection of recommended plan of improvement, preparation of draft EA, and completion of draft feasibility report, \$36,000 is recommended to initiate preconstruction engineering and design.

*Miami Harbor Channel, Florida.*—The Committee recommendation includes \$510,000 to continue studies of the harbor deepening.

*Walton County, Florida.*—The Committee recommendation includes \$229,000 to initiate preconstruction engineering and design activities. This project is a test bed for the Institute of Water Resources Hurricane and Storm Damage Reduction model.

*Ocmulgee River Basin Watershed Management, Georgia.*—The Committee has recommended no funding for this administration new study start.

*Savannah Harbor Expansion, Georgia.*—The Committee recommendation has included funds for this project under the Construction General Heading. The Construction Phase was initiated in the fiscal year 2009 Energy and Water Development Appropriations Act.

*Prairie Dupont Levee, Illinois.*—The Committee recommends \$209,000 for the feasibility study to assess the potential for reconstruction of deteriorated features such as gates and culverts. The recommendation also includes \$255,000 for the deficiency correction preconstruction engineering and design studies to investigate solutions such as rehabilitation/replacement of existing relief wells and the construction of additional relief wells.

*Upper Mississippi River—Illinois Waterway Navigation System, Illinois, Iowa, Minnesota, Missouri, and Wisconsin.*—The Committee recommendation includes \$9,000,000 for continuation of preconstruction engineering and design studies. The Committee recognizes the need to modernize this more than 60-year-old navigation system and has provided continued funding for both structural design and environmental restoration work.

*Green River Watershed, Kentucky.*—The Committee has recommended no funding for this new study star proposed by the administration.

*Louisiana Coastal Area Ecosystem Restoration, Louisiana.*—The Committee recommends \$23,000,000 for these important studies. The Committee notes that the Science activities are included within the overall line item rather than being budgeted separately.

The reduction made to these studies should not be viewed as any diminution of support for these efforts, rather it is an attempt to balance out the Corps of Engineers nationwide program among the various missions of the Corps.

*Louisiana Coastal Protection and Restoration Project [LACPR], Louisiana.*—The Committee recommendation includes \$3,000,000 to refine and integrate LACPR findings and outputs regarding alternative trade-offs, and coastal landscape contributions to risk management, with ongoing Hurricane Storm Damage Reduction projects and Coastal Protection and Restoration projects and to delineate comprehensive plans for higher levels of storm surge risk reduction.

*Chesapeake Bay, Susquehanna Reservoir Sediment Management, Maryland, Pennsylvania and Virginia.*—It has been estimated that 280 million tons of sediment originating from the Susquehanna River watershed are trapped behind the four hydroelectric dams located on the Lower Susquehanna River between Havre de Grace, Maryland, and Harrisburg, Pennsylvania. Three of the four dams Holtwood, Safe Harbor, and York Haven have reached steady state. It is estimated that the Conowingo Dam will cease to have trapping capacity in 15 to 20 years. Once this last reservoir reaches steady state, the sediment input to the bay may increase dramatically. The Committee recommendation includes \$143,000 to complete the reconnaissance study to examine the impact of the Lower Susquehanna River Dams on sediment transport into the Bay and \$57,000 to initiate feasibility studies.

*St. Louis Watershed, Missouri.*—The Committee has recommended no funding for this new study star proposed by the administration.

*Upper Delaware River Watershed, Livingston Manor, New York.*—The Committee recommendation includes \$170,000 to continue flood control studies along the Delaware River.

*Red River of the North Basin, Minnesota, North Dakota, South Dakota and Manitoba.*—The Committee recommendation includes \$3,050,000 to continue various flood damage reduction studies in North Dakota and Minnesota. In the Fargo, North Dakota/Moorhead, Minnesota area alone the Red River has exceeded flood stage in 51 of the past 107 years and every year from 1993 through 2009. Studies are ongoing under this authority in the Fargo-Moorhead Metro area, Pembina, North Dakota, the Fargo upstream area and additional studies of the Sheyenne River will be undertaken to evaluate solutions to the 2009 spring flood.

*James River, South Dakota and North Dakota.*—The Committee has recommended \$200,000 to evaluate solutions to flooding conditions in the James River Basin due to the spring 2009 flood.

*Gathright Dam and Lake Moomaw, Virginia.*—The Committee recommendation includes \$255,000 to initiate feasibility studies to address several problems articulated by the Virginia Department of Environmental Quality and the Department of Game and Inland Fisheries including benthic impairments, low dissolved oxygen concentrations, elevated nutrient levels, and cold and warm water fisheries in the James River below the lake.

*Vicinity of Willoughby Spit, Norfolk, Virginia.*—The Committee recommends \$243,000 to complete the General Reevaluation Study.

*Centralia, Chehalis River, Lewis County, Washington.*—The Committee recommendation includes \$1,000,000 to continue preconstruction engineering and design efforts to reduce the risk of flooding to the Interstate 5 corridor. Significant flooding in 2007

and 2009 resulted in heavy damages to urban and rural areas of the Chehalis Basin and closed I-5 for a total of 6 days.

*Chehalis River Basin, Washington.*—The Committee recommends \$1,000,000 for plan formulation for a Feasibility decision document, conduct a Feasibility Scoping meeting and initiate the alternatives analysis for ecosystem and flood risk management studies. It is the Committee's understanding that Grays Harbor has recently indicated they would like to pursue increasing the scope of the study to include flood risk management.

*Planning Assistance to States.*—The Committee recommendation includes \$8,051,000 for this nationwide cost-shared program. The Committee recognizes that there are hundreds of these studies ongoing at any given time. The Committee has provided a listing in the table of projects that should be given priority if cost-sharing funds are available from the local sponsors. However, the Corps should view these amounts as guides and reprogram funds as appropriate to move these studies forward as rapidly as possible.

*Coastal Field Data Collection.*—The Committee has recommended \$6,000,000 for this nationwide program. In addition to budgeted funds of \$1,400,000, \$4,600,000 has been recommended to continue the Coastal Data Information Program; Surge and Wave Island Modeling Studies, Hawaii; and the Pacific Island Land Ocean Typhoon Experiment Program. The Wave Data Study should also be continued within this overall funding amount. The Committee has included a portion of the climate change funding from the O&M account to this line item to ensure that this data collection effort continues. As a majority of our population lives within 50 miles of the coast it is prudent to invest in these data collection activities to be able to evaluate how sea level rise will affect all of our coastal areas. Recent studies have shown, for instance, that sea level rise will affect the Atlantic Coast unequally with the Chesapeake Bay area being impacted more than the northern and southern portions of the Atlantic Coast. However, the Atlantic and Gulf Coasts of 2100 will likely look much different than they do today.

The Global Climate Change Impacts in the United States Report ([www.globalchange.gov/usimpacts](http://www.globalchange.gov/usimpacts)) released by the White House in May 2009 shows the impacts to our coastal environments if even a moderate sea level rise of 2–4 feet occurs over the next 100 years. Planning needs to be accelerated to determine how sea level rise will be accommodated. This may involve an orderly retreat from some of the lowest areas of the coast over a period of years. Coastal protection projects will continue to be vital to protecting our population, but the policy question that must be answered is should all of our coastal areas be protected and at what cost.

*Flood Plain Management Services Program.*—The Committee recommendation includes \$13,200,000. The Committee has provided a listing in the table of projects that should be given priority if cost sharing funds are available from the local sponsors. However, the Corps should view these amounts as guides and reprogram funds as appropriate to move these studies forward as rapidly as possible.

*Research and Development.*—The Committee has recommended \$25,392,000 for the Corps nationwide research and development programs. The Committee believes that this is an important area of the Corps' program that should be supported and has rec-

ommended \$5,000,000 above the budget request. The Committee believes that some of this additional funding should be applied to climate change research to be conducted in concert with the Coastal Data Information Program. The Committee has also recommended \$1,000,000 to continue submerged aquatic vegetation research in the Chesapeake Bay and \$2,500,000 to continue the Urban Flood Demonstration Program in cooperation with the Desert Research Institute.

*National Shoreline Study.*—The Committee recommends an additional \$375,000 for the national Planning Center of Expertise for Coastal Storm Damage Reduction for continuing to develop a process for managing shore protection projects as part of a systems approach to coastal protection for the purpose of achieving improved project performance, increased cost effectiveness, and enhanced benefits.

*Water Resources Priorities Study.*—No funds are provided for this new study start proposed by the administration.

#### CONSTRUCTION, GENERAL

Appropriations, 2009 .....	\$2,141,677,000
Budget estimate, 2009 <sup>1</sup> .....	1,718,000,000
Committee recommendation .....	1,924,000,000

<sup>1</sup> Excludes emergency appropriations of \$4,835,000,000.

This appropriation includes funds for construction, major rehabilitation and related activities for water resources development projects having navigation, flood and storm damage reduction, water supply, hydroelectric, environmental restoration, and other attendant benefits to the Nation. The construction and major rehabilitation for designated projects for inland and costal waterways will derive one-half of the funding from the Inland Waterway Trust Fund. Funds to be derived from the Harbor Maintenance Trust Fund will be applied to cover the Federal share of the Dredged Material Disposal Facilities Program.

The Administration's budget request proposes funding for most of the construction items in the CG account. However, there were a few oversights that the Committee found within the O&M account and have chosen to fund those items under CG. The budget request for these items is displayed in the O&M account as requested by the Administration. These items are listed below.

When accounting for these items in the traditional accounts, the President's CG budget request is actually \$1,765,067,000 rather than \$1,718,000,000 as shown above. The projects moved from the O&M request include:

[In thousands of dollars]

Project Name	Amount
Assateague, MD .....	1,000
Lower Cape May Meadows, Cape May Point, NJ .....	400
Cape May Inlet to Lower Township, NJ .....	200
Delaware Bay Coastline, Roosevelt Inlet to Lewes Beach, DE .....	350
Section 111 Program .....	9,043
Poplar Island, MD .....	8,200
Dredged Material Disposal Facilities .....	5,199
Indiana Harbor (Confined Disposal Facility), IN .....	13,500
Section 204/145 .....	9,175

[In thousands of dollars]

Project Name	Amount
TOTAL, Projects Migrating from Construction to O&M .....	47,067

The projects that are included in the line item above for the Dredged Material Disposal Facilities are listed in the CG table.

Due to constrained funding, the Committee reduced the requested amounts for some administration projects. This should not be perceived as a lack of support for any of these projects, rather it is an attempt by the Committee to balance out the program across the Nation and fund most of the projects or studies that were funded in fiscal year 2009 but were not addressed by the administration proposal.

Even with a \$280,000,000 increase to the Corps' accounts, the Committee is unable to address all of the needs. The CG account is down by \$80,500,000 from the fiscal year 2009 Senate proposal. By the Committee's estimate, less than 60 percent of the needed funding is available for this account. Construction schedules will slip due to this constrained funding. This will result in deferred benefits to the national economy. The Committee does not believe that there is any way to prioritize the projects to alleviate this problem without serious unintended consequences. Adequate resources have been denied for too long. Only providing adequate resources for these national investments will resolve this situation.

The Committee deleted the new construction starts requested by the Administration as sufficient funding does not exist in the current budget nor is there reasonable assurance that sufficient funds will be available in the future to accommodate these new items as well as ongoing work.

The appropriation provides funds for the Continuing Authorities Program (projects which do not require specific authorizing legislation), which includes projects for flood control (section 205), emergency streambank and shoreline protection (section 14), beach erosion control (section 103), mitigation of shore damages (section 111), navigation projects (section 107), snagging and clearing (section 208), aquatic ecosystem restoration (section 206), beneficial uses of dredged material (section 204), and project modifications for improvement of the environment (section 1135).

The budget request and the approved Committee allowance are shown on the following table:

## CORPS OF ENGINEERS—CONSTRUCTION, GENERAL

[In thousands of dollars]

Project title	Budget estimate	Committee recommendation
ALABAMA		
TUSCALOOSA, AL .....	.....	10,000
ALASKA		
ALASKA COASTAL EROSION, AK .....	.....	2,000
ST. PAUL HARBOR, AK .....	3,000	3,000
UNALASKA, AK .....	.....	2,000



## CORPS OF ENGINEERS—CONSTRUCTION, GENERAL—Continued

[In thousands of dollars]

Project title	Budget estimate	Committee recommendation
ARKANSAS		
RED RIVER BELOW DENISON DAM, LA, AR & TX .....	.....	2,000
RED RIVER EMERGENCY BANK PROTECTION, AR & TX .....	.....	2,000
CALIFORNIA		
AMERICAN RIVER WATERSHED (COMMON FEATURES), CA .....	6,700	6,700
AMERICAN RIVER WATERSHED (FOLSOM DAM MODIFICATIONS), C .....	66,700	66,700
AMERICAN RIVER WATERSHED (FOLSOM DAM RAISE), CA .....	600	600
CALFED LEVEE STABILITY PROGRAM, CA .....	.....	5,000
CORTE MADERA CREEK, CA .....	.....	500
FARMINGTON RECHARGE, CA .....	.....	1,000
GUADALUPE RIVER, CA .....	.....	304
HAMILTON AIRFIELD WETLANDS RESTORATION, CA .....	14,250	14,250
KAWEAH RIVER, CA .....	640	640
LOS ANGELES HARBOR MAIN CHANNEL DEEPENING, CA .....	885	885
MID VALLEY AREA LEVEE RECONSTRUCTION, CA .....	.....	2,000
MURRIETA CREEK, CA .....	.....	2,000
NAPA RIVER, CA .....	5,000	1,000
NAPA RIVER SALT MARSH RESTORATION, CA .....	6,750	.....
OAKLAND HARBOR (50-FOOT PROJECT), CA .....	1,000	1,000
PLACER COUNTY, CA .....	.....	2,000
SACRAMENTO DEEPWATER SHIP CHANNEL, CA .....	10,000	10,000
SACRAMENTO RIVER BANK PROTECTION PROJECT, CA .....	15,000	15,000
SACRAMENTO RIVER, GLENN-COLUSA IRRIGATION DISTRICT, CA .....	.....	500
SAN LUIS REY RIVER, CA .....	.....	2,500
SANTA ANA RIVER MAINSTEM, CA .....	52,193	52,193
SOUTH SACRAMENTO COUNTY STREAMS, CA .....	2,500	2,500
SUCCESS DAM, TULE RIVER (DAM SAFETY), CA .....	10,000	10,000
TAHOE BASIN RESTORATION, CA .....	.....	3,000
UPPER GUADALUPE RIVER, CA .....	.....	2,000
WEST SACRAMENTO, CA .....	2,955	.....
YUBA RIVER BASIN, CA .....	.....	2,000
DELAWARE		
DELAWARE BAY COASTLINE, ROOSEVELT INLET TO LEWES BEACH .....	.....	350
DELAWARE COAST PROTECTION, DE .....	.....	390
DELAWARE COAST FROM CAPE HELOPEN TO FENWICK ISLAND, BE .....	.....	1,750
DELAWARE COAST FROM CAPE HELOPEN TO FENWICK ISLAND, R .....	.....	2,000
DISTRICT OF COLUMBIA		
WASHINGTON, DC & VICINITY .....	6,790	.....
FLORIDA		
BREVARD COUNTY, FL (MID AND SOUTH REACHES) .....	.....	500
CEDAR HAMMOCK, WARES CREEK, FL .....	5,565	5,565
HERBERT HOOVER DIKE, FL (SEEPAGE CONTROL) .....	130,000	130,000
JACKSONVILLE HARBOR, FL .....	.....	950
LEE COUNTY, FL .....	.....	1,400
MARTIN COUNTY, FL .....	350	350
PANAMA CITY BEACHES, FL .....	.....	500
PINELLAS COUNTY, FL .....	6,000	6,000
SOUTH FLORIDA EVERGLADES ECOSYSTEM RESTORATION, FL .....	214,357	163,402
CENTRAL AND SOUTHERN FLORIDA, FL .....	(163,771)	(117,004)
EVERGLADES AND S. FLORIDA ECOSYSTEM RESTORATION, .....	(1,725)	(1,725)
KISSIMMEE RIVER, FL .....	(44,673)	(44,673)
MODIFIED WATER DELIVERIES, FL .....	(4,188)	.....
TAMPA HARBOR, FL .....	.....	500
GEORGIA		
ATLANTA ENVIRONMENTAL INFRASTRUCTURE, GA .....	.....	1,000
RICHARD B. RUSSELL DAM AND LAKE, GA & SC .....	1,615	1,615

## CORPS OF ENGINEERS—CONSTRUCTION, GENERAL—Continued

[In thousands of dollars]

Project title	Budget estimate	Committee recommendation
SAVANNAH HARBOR, GA .....		1,000
HAWAII		
IAO STREAMS, HI .....		250
HAWAII WATER MANAGEMENT, HI .....		2,000
KAHUKU, HI .....		4,360
IDAHO		
RURAL IDAHO .....		2,000
ILLINOIS		
ALTON TO GALE LEVEE DISTRICT, IL & MO (DEF CORR) .....	300	300
CHAIN OF ROCKS CANAL, MISSISSIPPI RIVER, IL (DEF CORR) .....	6,500	6,500
CHICAGO SANITARY AND SHIP CANAL, DISPERSAL BARRIER, IL .....	5,000	5,000
CHICAGO SHORELINE, IL .....		3,500
DES PLAINES RIVER, IL .....	3,300	6,800
EAST ST LOUIS, IL .....	2,000	2,000
EAST ST. LOUIS AND VICINITY, IL .....		540
MCCOOK AND THORNTON RESERVOIRS, IL .....	25,000	25,000
NUTWOOD DRAINAGE AND LEVEE DISTRICT, IL .....		300
OLMSTED LOCKS AND DAM, OHIO RIVER, IL & KY .....	109,790	105,000
UPPER MISSISSIPPI RIVER RESTORATION, IL, IA, MN, MO & .....	20,000	18,000
WOOD RIVER LEVEE, IL .....	1,170	1,170
INDIANA		
INDIANA HARBOR CONFINED DISPOSAL FACILITY, IN <sup>1</sup> .....		13,500
LITTLE CALUMET RIVER, IN .....	20,000	20,000
MT. ZION MILL POND DAM, FULTON COUNTY, IN .....		575
IOWA		
DES MOINES AND RACCOON RIVERS, IA .....		2,700
DES MOINES RECREATIONAL RIVER AND GREENBELT, IA .....		4,300
MISSOURI RIVER FISH MITIGATION, IA, KS, MO, MT, NE .....	70,000	60,000
KANSAS		
TURKEY CREEK BASIN, KS & MO .....	2,500	3,500
KENTUCKY		
KENTUCKY LOCK AND DAM, TENNESSEE RIVER, KY .....	1,000	1,000
MARKLAND LOCKS AND DAM, KY, IL (MAJOR REHAB) <sup>1</sup> .....	1,000	1,000
WOLF CREEK DAM, LAKE CUMBERLAND, KY (SEEPAGE CONTROL) .....	123,000	123,000
LOUISIANA		
ASCENSION PARISH, LA [EI] .....		1,000
COMITE RIVER, LA .....		8,000
EAST BATON ROUGE PARISH, LA [FC] .....		3,000
EAST BATON ROUGE, LA [EI] .....		500
J. BENNETT JOHNSTON WATERWAY, LA .....	7,000	7,000
LAROSE TO GOLDEN MEADOW, LA [CG] .....	1,200	5,800
LIVINGSTON PARISH, LA [EI] .....		500
MARYLAND		
ASSATEAGUE ISLAND, MD .....		1,000
ATLANTIC COAST OF MARYLAND, MD .....		4,500
CHESAPEAKE BAY ENVIRONMENTAL RESTORATION AND PROTECTION .....		1,000
CHESAPEAKE BAY OYSTER RECOVERY, MD & VA .....		2,000
POPLAR ISLAND, MD .....		8,550
MASSACHUSETTS		
MUDDY RIVER, MA .....	4,000	5,000

## CORPS OF ENGINEERS—CONSTRUCTION, GENERAL—Continued

[In thousands of dollars]

Project title	Budget estimate	Committee recommendation
<b>MICHIGAN</b>		
GENESEE COUNTY, MI .....		600
GEORGE W. KUHN DRAIN PROJECT, MI .....		300
GREAT LAKES FISHERY AND ECOSYSTEM RESTORATION, MI .....		2,000
NEGAUNEE, MI .....		1,000
SAULT STE MARIE REPLACEMENT LOCK, MI .....		1,000
<b>MINNESOTA</b>		
BRECKENRIDGE, MN .....		5,000
ROSEAU, MN .....		2,500
<b>MISSISSIPPI</b>		
DESOTO COUNTY REGIONAL WASTEWATER SYSTEM, MS .....		8,000
MISSISSIPPI ENVIRONMENTAL INFRASTRUCTURE, MS .....		10,000
<b>MISSOURI</b>		
BLUE RIVER BASIN, KANSAS CITY, MO .....		750
BLUE RIVER CHANNEL, KANSAS CITY, MO .....	5,600	5,600
CHESTERFIELD, MO .....	3,331	3,331
CLEARWATER LAKE, MO (SEEPAGE CONTROL) .....	40,000	40,000
KANSAS CITY, MO & KS .....	700	
MERAMEC RIVER BASIN, VALLEY CITY LEVEE, MO .....		1,525
MISS RIVER BTWN THE OHIO AND MO RIVERS (REG WORKS), MO .....	580	580
MISSOURI AND MIDDLE MISSISSIPPI RIVERS ENHANCEMENT, MO .....		1,000
MISSOURI RIVER LEVEE SYSTEM (L-385), MO, IA, NE, KS .....		2,500
ST. LOUIS FLOOD PROTECTION, MO .....	566	566
SWOPE PARK INDUSTRIAL AREA, KANSAS CITY, MO .....		4,000
<b>MONTANA</b>		
FORT PECK CABIN CONVEYANCE, MT .....		1,869
RURAL MONTANA, MT .....		5,000
<b>NEBRASKA</b>		
ANTELOPE CREEK, NE .....	5,697	5,697
<b>NEVADA</b>		
RURAL NEVADA (EI), NV .....		15,000
<b>NEW JERSEY</b>		
BARNEGAT INLET TO LITTLE EGG HARBOR INLET, NJ .....		5,000
BRIGANTINE INLET TO GREAT EGG HARBOR INLET (ABSECON IS) .....		2,000
BRIGANTINE INLET TO GREAT EGG HARBOR INLET, BRIGANTINE .....		80
CAPE MAY INLET TO LOWER TOWNSHIP, NJ .....		200
DELAWARE RIVER MAIN CHANNEL DEEPENING, NJ, PA, DE .....		10,000
GREAT EGG HARBOR INLET & PECK BEACH, NJ .....	6,500	6,500
GREAT EGG HARBOR TO TOWNSENDS INLET, NJ .....		3,500
HACKENSACK MEADOWLANDS, NJ .....		500
JOSEPH G. MINISH WATERFRONT, NJ .....		3,000
LOWER CAP MAY MEADOWS, CAPE MAY POINT, NJ .....		400
PASSAIC RIVER BASIN FLOOD MGMT, NJ .....		1,000
RAMAPO RIVER AT MAHWAH AND SUFFERN, NJ .....		200
RARITAN BAY AND SANDY HOOK BAY, NJ .....		2,000
RARITAN BAY AND SANDY HOOK BAY, PORT MONMOUTH, NJ .....		2,000
RARITAN RIVER BASIN, GREEN BROOK SUB-BASIN, NJ .....	7,000	7,000
SANDY HOOK TO BARNEGAT INLET, NJ .....		2,000
TOWNSENDS INLET TO CAPE MAY INLET, NJ .....		2,000
<b>NEW MEXICO</b>		
ACEQUIAS IRRIGATION SYSTEM, NM .....		500
ALAMOGORDO, NM .....		4,200
MIDDLE RIO GRANDE FLOOD PROTECTION, BERNALILLO TO BELE .....		800

## CORPS OF ENGINEERS—CONSTRUCTION, GENERAL—Continued

[In thousands of dollars]

Project title	Budget estimate	Committee recommendation
RIO GRANDE FLOODWAY, SAN ACACIA TO BOSQUE DEL APACHE, .....	800	800
SOUTHWEST VALLEY ALBUQUERQUE, NM .....	.....	4,000
NEW YORK		
ATLANTIC COAST OF NYC, ROCKAWAY INLET TO NORTON POINT, .....	3,000	3,000
FIRE ISLAND INLET TO MONTAUK POINT, NY .....	5,800	5,800
LONG BEACH ISLAND, NY .....	700	700
NEW YORK AND NEW JERSEY HARBOR, NY & NJ .....	64,716	60,000
NEW YORK CITY WATERSHED, NY .....	.....	1,000
NEW YORK STATE CANAL, NY .....	.....	1,000
ONONDAGA LAKE, NY .....	.....	1,000
ORCHARD BEACH, BRONX, NY .....	.....	1,000
NORTH CAROLINA		
BRUNSWICK COUNTY BEACHES, NC .....	.....	900
CAROLINA BEACH AND VICINITY, NC .....	1,500	1,500
WEST ONSLOW BEACH AND NEW RIVER INLET, NC .....	400	400
WILMINGTON HARBOR, NC .....	1,800	1,800
NORTH DAKOTA		
GARRISON DAM AND POWER PLANT, ND (REPLACEMENT) .....	8,620	8,620
GRAND FORKS, ND—EAST GRAND FORKS, MN .....	.....	2,617
MISSOURI RIVER RESTORATION, ND .....	.....	300
NORTH DAKOTA ENVIRONMENTAL INFRASTRUCTURE, ND .....	.....	15,000
OHIO		
DOVER DAM, MUSKINGUM RIVER, OH (DAM SAFETY ASSURANCE) .....	18,500	18,500
HOLES CREEK, WEST CARROLLTON, OHIO .....	.....	1,656
OHIO EI, OH .....	.....	1,000
OKLAHOMA		
CANTON LAKE, OK (DAM SAFETY) .....	24,250	24,250
OREGON		
COLUMBIA RIVER TREATY FISHING ACCESS SITES, OR & WA .....	500	500
ELK CREEK LAKE, OR .....	500	500
WILLAMETTE TEMPERATURE CONTROL, OR .....	11,000	11,000
PENNSYLVANIA		
EMSWORTH L&D, OHIO RIVER, PA (STATIC INSTABILITY CORRE .....	25,000	25,000
LOCKS AND DAMS 2, 3 AND 4, MONONGAHELA RIVER, PA .....	6,210	6,210
PRESQUE ISLE, PA .....	1,000	1,000
WYOMING VALLEY (LEEVE RAISING), PA .....	.....	1,200
PUERTO RICO		
PORTUGUES AND BUCANA RIVERS, PR .....	45,000	42,000
RIO PUERTO NUEVO, PR .....	5,000	5,000
SOUTH DAKOTA		
BIG SIOUX RIVER, SIOUX FALLS, SD .....	.....	4,000
TENNESSEE		
CENTER HILL DAM (SEEPAGE CONTROL), TN .....	56,000	56,000
CHICKAMAUGA LOCK, TENNESSEE RIVER, TN .....	1,000	1,000
TEXAS		
BRAYS BAYOU, HOUSTON, TX .....	7,300	5,300
CENTRAL CITY, FORT WORTH, UPPER TRINITY RIVER, TX .....	.....	500
CORPUS CHRISTI SHIP CHANNEL, TX .....	.....	2,000
DALLAS FLOODWAY EXTENSION, TRINITY RIVER, TX .....	.....	22,000
JOHNSON CREEK, UPPER TRINITY BASIN, ARLINGTON, TX .....	.....	1,500

## CORPS OF ENGINEERS—CONSTRUCTION, GENERAL—Continued

[In thousands of dollars]

Project title	Budget estimate	Committee recommendation
RED RIVER BASIN CHLORIDE CONTROL, TX & OK .....		1,000
SAN ANTONIO CHANNEL IMPROVEMENT, TX .....		5,000
SIMS BAYOU, HOUSTON, TX .....	25,700	18,000
TEXAS CITY CHANNEL, TX .....	8,000	6,000
UTAH		
RURAL UTAH, UT [E] .....		20,000
VERMONT		
BURLINGTON HARBOR, VT .....		500
LAKE CHAMPLAIN WATERSHED INITIATE, VT .....		1,000
VIRGINIA		
AIWW, BRIDGES AT DEEP CREEK, VA .....	1,500	
JAMES RIVER DEEPWATER TURNING BASIN, VA .....		2,234
JOHN H KERR DAM AND RESERVOIR, VA & NC (REPLACEMENT) .....	16,915	16,915
NORFOLK HARBOR, CRANEY ISLAND, VA .....	28,500	
NORFOLK HARBOR AND CHANNELS (DEEPENING), VA .....		1,000
RICHMOND CSO, VA .....		150
ROANOKE RIVER UPPER BASIN, HEADWATERS AREA, VA .....	1,075	1,075
WASHINGTON		
CHIEF JOSEPH GAS ABATEMENT, WA .....	1,000	1,000
COLUMBIA RIVER FISH MITIGATION, OR & WA .....	95,800	85,000
DUWAMISH AND GREEN RIVER BASIN, WA .....	2,600	2,600
HOWARD HANSEN DAM, WA .....	13,000	13,000
LOWER COLUMBIA RIVER ECOSYSTEM RESTORATION, WA, OR .....	1,650	1,650
LOWER SNAKE RIVER FISH AND WILDLIFE COMP, WA, OR, ID .....	1,500	1,500
MT. ST. HELENS SEDIMENT CONTROL, WA .....	1,500	1,500
MUD MOUNTAIN DAM, WA .....	400	400
PUGET SOUND AND ADJACENT WATERS RESTORATION, WA .....		200
SHOALWATER BAY SHORELINE, WA .....		5,000
WEST VIRGINIA		
BLUESTONE LAKE, WV .....	86,700	86,700
GREENBRIER RIVER BASIN, WV .....		1,500
ISLAND CREEK BASIN IN AND AROUND LOGAN, WV, VA .....		21,750
LEVISA AND TUG FORKS AND UPPER CUMBERLAND RIVER, WV, V .....		6,750
VIRGINIA .....		(4,000)
WEST VIRGINIA .....		(2,750)
LOWER MUD RIVER, MILTON, WV .....		1,955
SUBTOTAL, FOR PROJECTS .....	1,610,020	1,815,414
NATIONAL PROGRAMS:		
AQUATIC PLANT CONTROL .....	4,000	5,000
GUNTERSVILLE LAKE HYDRILLA/MILFOIL .....		(150)
FIFE LAKE AQUATIC WEED CONTROL, MI .....		(145)
BLACK LAKE, OGDENSBURG, NY .....		(100)
SODUS BAY, NY .....		(100)
LAKE CHAUTAUQUA, JAMESTOWN, NY .....		(50)
LAKE CHAMPLAIN, VT .....		(500)
CONTINUING AUTHORITIES PROGRAM		
AQUATIC ECOSYSTEM RESTORATION (SECTION 206) .....	6,967	25,000
UPPER YORK CREEK DAM REMOVAL, CA .....		
GOOSE CREEK, CO .....		
TAMARISK ERADICATION ALONG THE COLORADO RIVER, .....		
MILL RIVER RESTORATION, STAMFORD, CT .....		
CHATTAHOOCHIE FALL-LINE ECOSYSTEM RESTORATION .....		
JACKSON CREEK, GWINNETT CO, GA .....		
LITTLE RIVER WATERSHED, HALL COUNTY, GA .....		

## CORPS OF ENGINEERS—CONSTRUCTION, GENERAL—Continued

[In thousands of dollars]

Project title	Budget estimate	Committee recommendation
PARADISE CREEK, ID .....	.....	.....
CHARITON RIVER AND RATHBUN LAKE WATERSHED, IA .....	.....	.....
EMUQUON PRESERVE, IL .....	.....	.....
ORLAND PARK, IL .....	.....	.....
CHARITON RIVER/RATHBUN LAKE, IA .....	.....	.....
CLEAR CREEK AND IOWA RIVER, JOHNSON COUNTY, IA .....	.....	.....
DUCK CREEK, DAVENPORT, IA .....	.....	.....
STORM LAKE, IA .....	.....	.....
VENTURA MARSH, IA .....	.....	.....
WHITEBREAST CREEK WATERSHED, IA .....	.....	.....
BURAS MARINA, LA .....	.....	.....
FALSE RIVER ECOSYSTEM RESTORATION, POINT COUPE .....	.....	.....
LAKE KILLARNEY, LOUISIANA STATE PENITENTIARY, .....	.....	.....
ZEMURRAY PARK LAKE RESTORATION, TANGIPAHOA PAR .....	.....	.....
MALDEN RIVER ECOSYSTEM, MA .....	.....	.....
MILFORD POND RESTORATION, MILFORD, MA .....	.....	.....
DEEP RUN/TIBER HUDSON, HOWARD COUNTY, MD .....	.....	.....
DOG ISLAND SHOALS, MD .....	.....	.....
GREENBURY POINT, MD .....	.....	.....
NORTH BEACH, MD .....	.....	.....
NORTHWEST BRANCH, ANACOSTIA RIVER, MD .....	.....	.....
PAINT BRANCH FISH PASSAGE, MD .....	.....	.....
PAINTER CREEK, MN .....	.....	.....
MUSCONETCONG RIVER DAM REMOVALS, NJ .....	.....	.....
BLUE HOLE LAKE STATE PARK, NM .....	.....	.....
JANES-WALLACE MEMORIAL DAM, SANTA ROSA, NM .....	.....	.....
KINGS PARK, NY .....	.....	.....
MUD CREEK, GREAT SOUTH BAY, NY .....	.....	.....
SOUNDVIEW PARK, BRONX, NY .....	.....	.....
SPRING CREEK, NY .....	.....	.....
CONCORD STREAMS RESTORATION, NC .....	.....	.....
WESTERN CARY STREAM RESTORATION, CARY, NC .....	.....	.....
WILSON BAY RESTORATION, JACKSONVILLE, NC .....	.....	.....
DRAYTON DAM, ND .....	.....	.....
CAMP CREEK, ZUMWALT PRAIRIE PRESERVE, OR .....	.....	.....
EUGENE DELTA PONDS, OR .....	.....	.....
KELLOGG CREEK, OR .....	.....	.....
OAKS BOTTOM, OR .....	.....	.....
SPRINGFIELD MILLRACE, OR .....	.....	.....
CODORUS CREEK WATERSHED RESTORATION, PA .....	.....	.....
NARROW RIVER, RI .....	.....	.....
WINNEPAUG POND RESTORATION, RI .....	.....	.....
MOSES LAKE, TX .....	.....	.....
RIO GRANDE ECOSYSTEM RESTORATION, LAREDO, TX .....	.....	.....
SPRING LAKE, SAN MARCOS, TX .....	.....	.....
STEPHENVILLE WWTP, TX .....	.....	.....
CARPENTER CREEK, WA .....	.....	.....
BENEFICIAL USES OF DREDGED MATERIAL (SECTION 204, 206, 933 .....	.....	10,000
BLACKHAWK BOTTOMS, IA .....	.....	.....
ATCHAFALAYA RIVER, SHELL ISLAND PASS, ST. MAR .....	.....	.....
CALC RV, MI 5—14 KS, LA .....	.....	.....
HOUMA NAVIGATION CANAL BARRIER ISLAND RESTORAT .....	.....	.....
CAPE COD CANAL, SANDWICH, MA .....	.....	.....
NEWBURY HARBOR, MA .....	.....	.....
NJIWW BENEFICIAL USE OF DREDGE, NJ .....	.....	.....
NJIWW, DREDGED HOLE 35, NJ .....	.....	.....
BUFFALO RIVER, NY .....	.....	.....
MANTEO OLD HOUSE, NC .....	.....	.....
MAUMEE BAY REGIONAL SEDIMENT MANAGEMENT, OH .....	.....	.....
WYNN ROAD REGIONAL SEDIMENT MANAGEMENT, OH .....	.....	.....
SOUTH PADRE ISLAND, TX .....	.....	.....

## CORPS OF ENGINEERS—CONSTRUCTION, GENERAL—Continued

[In thousands of dollars]

Project title	Budget estimate	Committee recommendation
EMERGENCY STREAMBANK AND SHORELINE PROTECTION (SECTION 205) .....	1,477	7,000
FLOOD CONTROL PROJECTS (SECTION 205) .....	12,049	38,000
INDIAN BAYOU, AR .....		
WYNNE, AR .....		
COSGROVE CREEK, CALAVERAS COUNTY, CA .....		
LAS GALLINAS CREEK/SANTA VENETIA LEVEE, CA .....		
PENNSYLVANIA AVENUE IMPROVEMENT, DE .....		
INDIAN/DRY CREEK CEDAR RAPIDS, IA .....		
MAD CREEK, MUSCATINE, IA .....		
WINNEBAGO RIVER, MASON CITY, IA .....		
CONCORDIA, KS .....		
EUREKA CREEK, MANHATTAN, KS .....		
NEODESHA, KS .....		
SEDGWICK, KS .....		
HOPKINSVILLE DRY-DAM, KY .....		
NORTH RIVER, PEABODY, MA .....		
MCKINNEY BAYOU, TUNICA COUNTY, MS .....		
BLACKSNAKE CREEK, ST. JOSEPH, MO .....		
LITTLE RIVER DIVERSION, DUTCHTOWN, MO .....		
LIVINGSTON, MT .....		
PLATT RIVER, FREMONT, NE .....		
PLATT RIVER, SCHUYLER, NE .....		
HATCH, NM .....		
ASSUNPINK CREEK, HAMILTON TOWNSHIP, MERCER CO .....		
JACKSON BROOK, NJ .....		
PENNSVILLE, NJ .....		
PORT JERVIS, NY .....		
BLANCHARD RIVER, OTTAWA, OH (OTTAWA, OH) .....		
DUCK CREEK, OH .....		
FINDLAY, OH .....		
PHILADELPHIA SHIPYARD SEA WALL, PHILADELPHIA, .....		
RIO DESCLA BRADO, PR .....		
RIO GUAMANI-GUAYA, PR .....		
EAST PROVIDENCE, RI .....		
BEAVER CREEK AND TRIBS, BRISTOL, TN .....		
WV STATEWIDE FLOOD WARNING SYSTEM, WV .....		
NAVIGATION PROGRAM (SECTION 107) .....	1,436	7,000
SAVOONGA HARBOR, AK .....		
OYSTER POINT MARINA/PARK BREAKWATER, CA .....		
NAPOLEAN AVENUE CONTAINER TERMINAL ACCESS, NE .....		
BASS HARBOR, ME .....		
BUCKS HARBOR, MACHIASPORT, ME .....		
RHODES POINT, SOMERSET CO, MD .....		
WOODS HOLE, GREAT HARBOR, WOODS HOLE, MA .....		
MACKINAC ISLAND HARBOR BREAKWATER, MI .....		
NORTHWESTERN MICHIGAN, TRAVERSE CITY, MI .....		
HAMPTON HARBOR, NH .....		
DELAWARE RIVER, FAIRLESS TURNING BASIN, PA .....		
CHARLESTOWN BREACHWAY AND INLET, RI .....		
POINT JUDITH HARBOR, EXPANSION STUDY, RI .....		
NORTHWEST TENNESSEE REGIONAL HARBOR, TN .....		
TANGIER ISLAND JETTY, VA .....		
MITIGATION OF SHORE DAMAGES (SECTION 111) .....		9,043
MOBILE PASS, AL .....		
EAST PASS CHANNEL, PANAMA CITY, FL .....		
BRUN HARBOR/JEKYLL IMPROVEMENTS, GA .....		
CAMP ELLIS, SACO, ME .....		
MANISTEE HARBOR AND RIVER CHANNEL, MI .....		
MATTITUCK HARBOR, NY .....		
FAIRPORT HARBOR, OH .....		
VERMILLION HARBOR, OH .....		

## CORPS OF ENGINEERS—CONSTRUCTION, GENERAL—Continued

[In thousands of dollars]

Project title	Budget estimate	Committee recommendation
WHITCOMB FLATS, WA .....		
PROJECT MODS FOR IMPROVEMENT OF THE ENVIRONMENT (SECTI .....	5,736	25,000
LOWER CACHE RESTORATION, AR .....		
MILLWOOD LAKE, GRASSY LAKE, AR .....		
LOWER KINGMAN ISLAND, DC .....		
BRAIDED REACH, ID .....		
SHORTY'S ISLAND, ID .....		
RATHBUN LAKE HABITAT RESTORATION, IA .....		
GREEN RIVER DAM MOD, KY .....		
BAYOU DESIARD, MONROE, LA .....		
HOUMA NAVIGATION CANAL MILE 12—31.4 RESTORATION .....		
MORGANZA FORE-BAY RESTORATION, LA .....		
BLOOMINGTON STATE PARK, MO .....		
BLUE VALLEY WETLANDS, JACKSON COUNTY, MO .....		
DUCK CREEK, STODDARD COUNTY, MO .....		
LINCOLN PARK WEST, ECOSYSTEM RESTORATION STUD .....		
LAS CRUCES DAM ENVIRONMENTAL RESTORATION, DON .....		
AQUATIC HABITAT RESTORATION at PUEBLO OF SANTA ANA, NM .....		
NORTHPORT HARBOR, NY .....		
SMOKES CREEK, NY .....		
PRISON FARM SHORELINE HABITAT, ND .....		
TAPPAN LAKE, OH .....		
LOWER COLUMBIA SLOUGH, OR .....		
WALLA WALLA RIVER, OR .....		
LAKE CHAMPLAIN LAMPREY BARRIERS, VT .....		
BENNINGTON LAKE DIVERSION DAM, WA .....		
SHORE PROTECTION (SECTION 103) .....	680	4,230
BAY FARM ISLAND, CA [BAY FARM DIKE, CA] .....		
GOLETA BEACH, CA .....		
PISMO BEACH, CA .....		
PROSPECT BEACH, WEST HAVEN, CT .....		
COASTAL AREAS, MARSHFIELD, MA .....		
SEASIDE PARK, OCEAN COUNTY, NJ .....		
FORT SAN GERONIMO, PR .....		
LINCOLN PARK BEACH, WA .....		
SNAGGING AND CLEARING (SECTION 208) .....	200	200
CAMP BAYOU CANAL, MOREHOUSE PARISH, LA .....		
SNAGGING AND CLEARING UPPER BAYOU BOEUF, LA .....		
AUGLAIZE RIVER, OH .....		
BLACKWELL LAKE, BLACKWELL, OK .....		
SWCD FLOOD REDUCTION, OR .....		
DAM SAFETY AND SEEPAGE/STABILITY CORRECTION PROGRAM .....	49,100	49,100
DAM SAFETY ASSURANCE STUDIES:		
ISABELLA DAM, CA .....		
MARTIS CREEK DAM, CA & NV .....		
CHERRY CREEK DAM, CO .....		
DWORSHAK DAM, ID .....		
JOHN DAY LOCK AND DAM, OR & WA .....		
SEEPAGE/STABILITY CORRECTION STUDIES:		
BLAKELY MOUNTAIN DAM, AR .....		
HIDDEN DAM, CA .....		
SAN ANTONIO DAM, CA .....		
TERMINUS DAM, CA .....		
WHITTIER NARROWS DAM, CA .....		
TRINIDAD DAM, CO .....		
HOP BROOK DAM, CT .....		
MANSFIELD HOLLOW DAM, CT .....		
HERBERT HOOVER DIKE (REACH 2&3), FL .....		
DWORSHAK DAM, ID .....		
LA GRANGE L&D, IL .....		
LAKE SHELBYVILLE DAM, IL .....		



## CORPS OF ENGINEERS—CONSTRUCTION, GENERAL—Continued

[In thousands of dollars]

Project title	Budget estimate	Committee recommendation
MISSISSIPPI RIVER, LOCK AND DAM 24, IL&MO .....	.....	.....
MISSISSIPPI RIVER, LOCK AND DAM 25, IL&MO .....	.....	.....
THOMAS J. O'BRIEN CONTROLLING WORKS L&D, IL .....	.....	.....
BROOKVILLE DAM, IN .....	.....	.....
J. EDWARD ROUSH DAM, IN .....	.....	.....
PATOKA LAKE DAM, IN .....	.....	.....
SALAMONIE LAKE DAM, IN .....	.....	.....
HARTFORD LEVEE AT JOHN REDMOND, KS .....	.....	.....
GREEN RIVER LAKE DAM, KY .....	.....	.....
MARKLAND LOCKS AND DAM, KY & OH .....	.....	.....
NOLIN LAKE DAM, KY .....	.....	.....
ROUGH RIVER LAKE, DAM, KY .....	.....	.....
SALAMONIE LAKE DAM, KY .....	.....	.....
RUSSELL B. LONG L&D, LA .....	.....	.....
WESTVILLE LAKE DAM, MA .....	.....	.....
MISSISSIPPI RIVER LOCK AND DAM 1, MN .....	.....	.....
MISSISSIPPI RIVER LOCK AND DAM 2, MN .....	.....	.....
MISSISSIPPI RIVER LOCK AND DAM 3, MN .....	.....	.....
ORWELL RESERVOIR DAM, MN .....	.....	.....
ARKABUTLA, MS .....	.....	.....
CAPE FEAR RIVER LOCK AND DAM 1, NC .....	.....	.....
BEACH CITY DAM, OH .....	.....	.....
BOLIVAR DAM, OH .....	.....	.....
DELAWARE DAM, OH .....	.....	.....
MAGNOLIA LEVEE,(BOLIVAR DAM), OH .....	.....	.....
MOHAWK DAM, OH .....	.....	.....
CUMBERLAND DIKE—TEXOMA, OK .....	.....	.....
KEYSTONE LAKE DAM, OK .....	.....	.....
ROBERT S. KERR LOCK AND DAM, OK .....	.....	.....
BONNEVILLE LOCK AND DAM, OR & WA .....	.....	.....
FOSTER DAM, OR .....	.....	.....
WILLAMETTE FALLS LOCK, OR .....	.....	.....
CHARLENOIS (MONOR), PA .....	.....	.....
CURWENSVILLE DAM, PA .....	.....	.....
EAST BRANCH DAM, CLARION RIVER, PA .....	.....	.....
HAMMOND DAM, PA .....	.....	.....
MONTGOMERY LOCKS AND DAM, PA .....	.....	.....
J. PERCY PRIEST, TN .....	.....	.....
ADDICKS DAM, BUFFALO BAYOU, TX .....	.....	.....
BARKER DAM (BUFFALO BAYOU.), TX .....	.....	.....
LEWISVILLE DAM, TX .....	.....	.....
PROCTOR DAM, TX .....	.....	.....
STILLHOUSE-HOLLOW DAM, TX .....	.....	.....
TOWN BLUFF DAM, TX .....	.....	.....
WHITNEY LEVEE, TX .....	.....	.....
BALL MOUNTAIN DAM, VT .....	.....	.....
HOWARD HANSEN DAM, WA .....	.....	.....
MILL CREEK AND MILL CREEK DIVERSION DAM, WA .....	.....	.....
NEW CUMBERLAND L&D, WV .....	.....	.....
CEDARS LOCK AND DAM, WI .....	.....	.....
DEPERE GEN LAWS, WI .....	.....	.....
LITTLE CHUTE, WI .....	.....	.....
RAPIDE CROCHE LOCK AND DAM, WI .....	.....	.....
DREDGED MATERIAL DISPOSAL FACILITIES PROGRAM [DMDF] .....	.....	5,199
JACKSONVILLE HARBOR, FL 1 .....	.....	(1,000)
SAVANNAH HARBOR, GA 1 .....	.....	(900)
CALUMET HARBOR AND RIVER, IL & IN 1 .....	.....	(1,501)
CHARLESTON HARBOR, SC 1 .....	.....	(1,798)
EMPLOYEES COMPENSATION FUND .....	21,000	21,000
ESTUARY RESTORATION PROGRAM (PUBLIC LAW 106-457) .....	5,000	1,000
INLAND WATERWAYS USER BOARD (BOARD EXPENSES) .....	60	60

## CORPS OF ENGINEERS—CONSTRUCTION, GENERAL—Continued

[In thousands of dollars]

Project title	Budget estimate	Committee recommendation
INLAND WATERWAYS USER BOARD (COE EXP) .....	275	275
SHORELINE EROSION CONTROL DEVELOPMENT AND DEMONSTRATION .....		1,000
SUBTOTAL, FOR PROJECTS NOT LISTED UNDER STATES .....	107,980	208,107
SAVINGS AND SLIPPAGE .....		— 100,426
TOTAL CONSTRUCTION, GENERAL .....	1,718,000	1,924,000

*Alabama-Coosa-Tallapoosa [ACT], Apalachicola-Chattahoochee-Flint [ACF] Rivers, Alabama, Florida, and Georgia.*—The Secretary of the Army, acting through the Chief of Engineers, is directed to provide an updated calculation of the critical yield of all Federal projects in the ACF river basin and an updated calculation of the critical yield of all Federal projects in the ACT river basin within 120 days of enactment of this Act.

*Tuscaloosa, Alabama.*—The Committee recommends \$10,000,000 for the relocation project at Tuscaloosa, Alabama.

*Unalaska, Alaska.*—The Committee recommends \$2,000,000 for continuation of this navigation project.

*Ozark-Jeta Taylor, Arkansas.*—The Committee has included no funding to complete the continuing contract for this project that was not funded in the budget request. It is the Committee's understanding that the administration has committed to fund this project through surplus ARRA funds.

*Red River Below Denison Dam, Arkansas, Louisiana, Oklahoma and Texas.*—The Committee recommends \$2,000,000 to continue levee rehabilitation work in Arkansas and Louisiana to protect the 1.7 million-acre flood plain from crop damage; loss of livestock; damage to levees, railroads, highways, industries, and other river and urban developments.

*Red River Emergency Bank Protection, Arkansas and Louisiana.*—The Committee recommends \$2,000,000 for protection of critical infrastructure and land along the Red River below Index, Arkansas. The project plan provides for revetment, dikes, or cutoffs that can be accomplished in advance of developing the design for the entire project.

*Mid Valley Area Levee Reconstruction, California.*—The Committee recommendation includes \$2,000,000 reconstruction of this flood control project. The project includes levee reconstruction through installing landside berms with toe drains, ditch relocation, embankment modification, slurry cut-off walls, and developing land for fish and wildlife mitigation.

*Napa River, California.*—The Committee recommendation includes \$1,000,000 rather than the \$5,000,000 proposed in the budget. This amount was reduced in recognition of the nearly \$100,000,000 this project received in the ARRA not due to any diminution of support for the project by the Committee.

*Napa River Salt Marsh, California.*—The Committee has not recommended any funding for this new construction start proposed by the administration.

*Santa Ana River, California.*—The Committee recommends \$52,193,000 to continue construction of this flood control project.

*West Sacramento, California.*—The Committee recommendation included funding for the General Reevaluation Report in the General Investigations Table.

*Delaware Bay Coastline, Roosevelt Inlet to Lewes Beach, Delaware.*—The Committee has funded this item in this table. The budget request is shown in the O&M table as proposed by the administration.

*Delaware Coast Protection, Delaware.*—The Committee recommendation includes \$390,000 to reimburse the State for the Federal share of the annual operation and maintenance of the sand bypass facilities.

*Washington, DC and Vicinity, District of Columbia.*—The Committee recommendation has provided no funding for this new construction start proposed by the administration.

*Everglades and South Florida Ecosystem Restoration, Florida.*—The Committee has chosen to display the various, separately authorized components of the project in the table in addition to a single line item as was proposed in the budget. The Committee believes that it is prudent to maintain visibility of the various project elements in the budget process. The Committee has deleted the two new start requests proposed by the administration for the Everglades these are Site one and Indian River Lagoon-South. The total for these new construction starts is \$46,767,000 and the Central and Southern Florida line item has been reduced by this amount. This should not be interpreted as a reduction of support by this Committee for this project. Even without the new starts, the funding level for fiscal year 2010 is nearly \$40,000,000 more than what was provided in fiscal year 2009. Since fiscal year 2000 this Committee has provided more than \$1,300,000,000 in funding for Everglades restoration projects which is nearly twice the level of resources received by any other construction project in the same period.

The Committee has provided no funding for the Modified Waters Delivery Plan (\$4,188,000) as proposed in the budget. The Committee directed in the fiscal year 2009 Omnibus that this project should be funded through the Interior appropriations budget in future years. The Committee again directs the administration to include the Modified Waters Delivery Plan funding in the Interior budget in future budget submissions.

*Central and South Florida, Florida.*—Within the funds recommended, the Corps shall continue work on the Upper St. Johns River project.

*Jacksonville Harbor, Florida.*—The Committee has recommended \$950,000 to continue work on the general reevaluation report concerning further channel deepening.

*Tampa Harbor, Florida.*—\$500,000 is provided to complete the preconstruction engineering and design of navigation improvements and channel deepening.

*Chicago Sanitary and Ship Canal, Illinois.*—The Committee has recommended \$5,000,000 for construction on aquatic nuisance species Barriers I and II.

*Olmsted Locks and Dam, Ohio River, Illinois and Kentucky.*—The Committee recommends \$105,000,000 to continue construction of this project. None of the funds provided for the Olmsted Locks and Dam Project or any other construction funds are to be used to reimburse the Claims and Judgment Fund.

*Upper Mississippi River Restoration, Illinois, Iowa, Minnesota, Missouri and Wisconsin.*—The Corps is directed to complete a plan to transition this project to the Navigation and Ecosystem Sustainability Program [NESP] for the Upper Mississippi River System [UMRS]. Funding for NESP is dependent on a solution to shortfalls in the Inland Waterway Trust Fund, therefore a transition to NESP is not anticipated in the immediate future. However, in order to facilitate the eventual transition, while maintaining the Corps ecosystem restoration capacity on the UMRS, the Corps is directed to limit planning or construction under this authority to projects that can be completed or readily transferred to NESP within 2 years of NESP receiving sufficient construction funding to support program transition.

*Indiana Harbor (Confined Disposal Facility), Indiana.*—The Committee has recommended funding for this project in the CG account rather than in the O&M account as proposed by the administration.

*Missouri Fish and Wildlife Recovery, Iowa, Kansas, Missouri, Montana, Nebraska, North Dakota and South Dakota.*—The Committee recommends \$60,000,000 for this project. Within the recommended funds, \$18,000,000 is to be used for modifications to the Intake Dam to provide additional habitat for the pallid sturgeon.

*Turkey Creek, Kansas and Missouri.*—The Committee recommendation includes \$3,500,000 to continue construction of this project.

*Kentucky Lock and Dam, Tennessee River, Kentucky.*—The Committee recommends \$1,000,000 for continuation of the project. Funding deficits in the Inland Waterway Trust Fund prohibit the Committee from providing additional funds for the upstream lock excavation contract. The Committee recognizes that this is a critical path contract for the overall schedule. However, until the revenue stream for the Inland Waterway Trust Fund is enhanced, the Committee actions will be limited by available Trust Fund revenues.

*Larose to Golden Meadow, Louisiana.*—The Committee has recommended \$5,800,000 to continue efforts to provide 100-year flood protection for this project. Surveys show the levee grade is deficient by 12–18 inches.

*Assateague Island Restoration, Maryland.*—The Committee has recommended funding for this project in the CG table as has been the Committee tradition. The budget request is shown in O&M as proposed by the administration.

*Chesapeake Bay Environmental Program, Maryland, Pennsylvania and Virginia.*—The Committee has recommended \$1,000,000 for continuation of this project that is integral to the clean-up of the Chesapeake Bay.

*Chesapeake Bay Oyster Recovery, Maryland and Virginia.*—The Committee recommends \$2,000,000 to continue oyster recovery efforts.

*Poplar Island, Maryland.*—The Committee has recommended funding for this project in the CG table as has been the Committee tradition. The budget request is shown in O&M as proposed by the administration.

*Kansas Citys, Missouri and Kansas.*—The Committee has not recommended any funding for this new construction start proposed by the administration.

*Meramec River Basin, Valley City, Missouri.*—The Committee recommendation includes \$1,525,000 for additional flood risk management features to address problems that became apparent during the 2008 flood.

*Fort Peck Dam and Lake, Montana.*—The Committee recommendation includes \$1,869,000 for continuation of the disposition of Fort Peck cabins.

*Rural Nevada, Nevada.*—The Committee recommendation provides \$15,000,000 for this project. Within the funds provided the Corps should give consideration to projects at North Lemmon Valley; Spanish Springs Phased Sewering Project; Indian Springs Wastewater Collection and Treatment System Project; the Moapa Valley Wastewater Collection System Project; the Searchlight Water System Improvements Project; Huffaker Hills Water Conservation; Lawton-Verdi; Boulder City; Lyon County; Gerlach; Incline Village; Esmeralda County; Cold Springs; Fallon; Goldfield; Churchill County; West Wendover; Yearington; Virgin Valley Water District; Lovelock; Truckee Meadows Water Authority; McGill-Ruth Consolidated Sewer and Water District; Carlin; Eldorado Valley; Ely and Carson City. Other communities that meet the program criteria should be considered as funding allows.

*Cape May Inlet to Lower Township, New Jersey.*—The Committee has recommended funding for this project in the CG table as has been the Committee tradition. The budget request is shown in O&M as proposed by the administration.

*Lower Cape May Meadows—Cape May Point, New Jersey.*—The Committee has recommended funding for this project in the CG table as has been the Committee tradition. The budget request is shown in O&M as proposed by the administration.

*Acequias Irrigation System, New Mexico.*—The Committee recommends \$500,000 to continue restoration of these historic irrigation distribution systems.

*Middle Rio Grande Restoration, New Mexico.*—The Committee recommendation includes \$24,016,000 to continue environmental restoration efforts along the Rio Grande River within Bernalillo County.

*North Dakota [EI], North Dakota.*—The Committee has recommended \$15,000,000 for this program. \$7,900,000 is for the Traill Rural Water District; \$3,000,000 is for the North Central Rural Water District; \$950,000 is for the Barnes Rural Water District; \$750,000 for the Williams Rural Water District; \$600,000 for the Langdon Rural Water District; \$425,000 for the North Prairie Rural Water District; and \$375,000 for the Greater Ramsey Water District.

*New York and New Jersey Harbor, New York and New Jersey.*—The Committee recommends \$60,000 for continued construction of this harbor project. The reduction made under this heading should

not be viewed as any diminution of support for this project, rather an attempt to balance out the Corps of Engineers nationwide program among the various missions of the Corps.

*Ohio [EI], Ohio.*—The Committee recommendation includes \$1,000,000. These funds should be used for the Marietta WWTP and the Coalton Waterline.

*Presque Isle, Pennsylvania.*—The Committee recommends \$1,000,000 to continue this project.

*Big Sioux River, South Dakota.*—The Committee recommends \$4,000,000 to continue construction of this project. The Committee recognizes that, rightly or wrongly, there was an expectation by the project sponsors that this project was to be funded under the ARRA. When the project list was released, this project was not on the list due to the incredibly tortured criteria the administration utilized to decide which projects were funded. The Committee encourages the Corps to give consideration to funding this project if surplus ARRA funds become available.

*Central City, Fort Worth, Upper Trinity River Basin, Texas.*—The Committee recommendation includes \$500,000 for the Central City, Fort Worth, Texas, project.

*Red River Basin Chloride Control, Texas, Oklahoma, Arkansas and Louisiana.*—The Committee recommends \$1,000,000 to continue construction of the project.

*Sims Bayou, Houston, Texas.*—The Committee recommendation includes \$20,000,000 for this project. The reduction made to this project should not be viewed as any diminution of support for this project, rather an attempt to balance out the Corps of Engineers nationwide program among the various missions of the Corps.

*Rural Utah, [EI], Utah.*—The Committee recommendation includes \$20,000,000 to continue construction of eligible projects.

*Burlington Harbor, Vermont.*—The Committee recommends \$500,000 to continue work on removal of oil bollards in the harbor.

*Lake Champlain Watershed Initiative, Vermont.*—The Committee recommendation includes \$1,000,000 for continuation of this project.

*AIWW, Bridges at Deep Creek, Virginia.*—The Committee has not recommended any funding for this new construction start proposed by the administration.

*Norfolk Harbor, Craney Island, Virginia.*—The Committee has not recommended any funding for this new construction start proposed by the administration.

*Columbia River Fish Mitigation, Washington, Oregon, and Idaho.*—The Committee recommendation includes \$85,000,000 for this project. The reduction made to this project should not be viewed as any diminution of support for this project, rather an attempt to balance out the Corps of Engineers nationwide program among the various missions of the Corps.

*Levisa and Tug Forks of the Big Sandy River and Cumberland River, West Virginia, Kentucky, and Virginia.*—The Committee recommends \$6,750,000 for the continuation of the project. Within the funds recommended, the Committee includes \$4,000,000 for the Buchanan County, Dickenson County, and Grundy, Virginia elements. Further, the recommendation includes \$2,750,000 for

Kermit, Lower Mingo County, McDowell County, Upper Mingo, and Wayne County, West Virginia.

*Aquatic Plant Control Program.*—The Committee recommendation includes \$5,000,000 for this program. Funds above the budget request are included for cost-shared programs for Gunterville Lake, Alabama; Fife Lake, Michigan; Black Rock Lake, Odensburg, New York; Sodus Bay, New York; Lake Champlain, Vermont; and Lake Chautauqua, Jamestown, New York.

*Section 204 and Section 111 of the Continuing Authorities Program.*—The Committee has recommended funding for these programs in the CG table as has been the Committee tradition. The budget request is shown in O&M as proposed by the administration.

*Dredged Material Disposal Facilities Program.*—The Committee has recommended funding for this project in the CG table as has been the Committee tradition. The budget request is shown in O&M as proposed by the administration.

*Estuary Restoration Program.*—The Committee has included \$1,000,000 for this program. Within this amount, consideration should be given to the Colorado Lagoon, California, Restoration project.

*Shore Line Erosion Control Development and Demonstration Program.*—The Committee has recommended \$1,000,000 to continue monitoring programs and other appropriate activities under this authority.

#### CONTINUING AUTHORITIES PROGRAM

When Congress authorized the initial Continuing Authorities in the 1940s and 1950s, they were envisioned to provide a small pool of money available to the Corps of Engineers to solve very small localized problems without being encumbered by the longer study and project authorization process. As more programs were added to the Continuing Authorities Program [CAP] they became increasingly popular with congressional Members and the public. More and more congressionally directed projects began to appear in the annual appropriations bills. At first these congressionally directed projects were added to the base program. As more and more of these congressionally directed projects came into the program it became difficult for these congressionally directed projects to be added to the base, and as such, the base program began to shrink. Congressionally directed projects now dominate all sections of the CAP Program. Congressionally directed projects have proliferated to such an extent that several of the sections are over-subscribed.

The budget justifications for the CAP program do not provide much useful information as to how the administration developed its program for fiscal year 2010. There is a dollar value associated with each section and a listing of projects in priority order that corresponds to the amount. However, the Committee has no way of knowing whether the amount shown is adequate. The Corps is directed to provide more information to justify the amount shown on the justification sheets for fiscal year 2011.

Starting in fiscal year 2008 the Committee no longer provided any congressional earmarks for the section 14, Emergency Bank Stabilization authority. Again this year, the Committee has not

provided either the administration's earmark requests for this section or requests by Members for fiscal year 2010. By definition these are projects that are estimated to fail within 9–12 months. As an emergency situation the Chief of Engineers should have the responsibility for determining how these funds are expended in the most efficient and effective manner. Budget justifications for this section should display the anticipated projects and associated costs to be undertaken in the budget year as well as the anticipated resources necessary to address emergencies that arise in the budget year.

Starting in fiscal year 2011, the Committee will no longer list individual projects in the CAP program in the table. The priority system that has been established will guide the execution of the projects.

CAP projects and studies are listed in the CG table immediately preceding this section. This listing includes the priority projects listed in the President's budget request as well as those that were requested by Members. The Committee has not provided dollar amounts for the named projects in the report. This lack of specificity in project amounts is intended to give the Chief of Engineers flexibility within the various sections of the CAP program in order to address the backlog. The Committee has repeated the guidance below from the fiscal year 2009 statement of the managers that accompanied Public Law 111–8 detailing how the Corps should prioritize work in the CAP program.

The Corps shall give first priority to the projects listed in the tables in this report. For each CAP section, available funds over and above the amounts specified shall be allocated to the projects listed in the table for that section, including projects with specified amounts, in the following sequence of steps until the funds are exhausted:

- capability-level funds for ongoing projects that have executed cost sharing agreements for the applicable phase;
- capability-level funds for projects that are ready for execution of new cost sharing agreements for the applicable phase and for which Corps headquarters authorizes execution of the agreements;
- funds, as permitted by Corps policies, for other projects previously funded for the applicable phase but not ready for execution of new cost sharing agreements; and
- funds as permitted by Corps policies, for projects not previously funded for the applicable phase.

Within the step at which available funds are exhausted for each CAP section, funds shall be allocated to the projects in that section that rank high according to the following factors: high overall performance based on outputs; high percent fiscally complete; high unobligated carry-in; and listing in any conference report or statement of managers from fiscal year 2004 through fiscal year 2009. Section 14 funds shall be allocated to the projects that address the most significant risks and adverse consequences, irrespective of phase or previous funding history.

The Corps shall continue the ongoing process for suspending and terminating inactive projects. Suspended projects shall not be reactivated or funded unless the sponsor reaffirms in writing its sup-



port for the project and establishes its willingness and capability to execute its project responsibilities.

In order to provide a mix of studies, design, and construction within each CAP section, the Corps is directed to divide the funding generally 80/20 between the design and implementation and the feasibility phases within each authority. The Chief of Engineers shall provide a report to the Committees on Appropriations within 30 days of enactment of this act detailing how funds will be distributed to the individual items in the various CAP sections for the fiscal year. The Chief shall also provide an annual report at the end of each fiscal year detailing the progress made on the backlog of projects. The report should include the completions and terminations as well as progress of ongoing work.

The Corps is directed not to initiate any new continuing authorities projects in sections 205, 206, 208, or 1135 without explicit congressional direction. New projects may be initiated in the remaining sections after an assessment is made that such projects can be funded over time based on historical averages of the appropriation for that section and after prior approval by the Committees on Appropriations.

FLOOD CONTROL, MISSISSIPPI RIVER AND TRIBUTARIES, ARKANSAS, ILLINOIS, KENTUCKY, LOUISIANA, MISSISSIPPI, MISSOURI, AND TENNESSEE

Appropriations, 2009 .....	<sup>1</sup> \$383,823,000
Budget estimate, 2010 .....	248,000,000
Committee recommendation .....	340,000,000

<sup>1</sup> Excludes emergency funds of \$375,000,000.

This appropriation funds planning, construction, and operation and maintenance activities associated with water resource projects located in the lower Mississippi River Valley from Cape Girardeau, Missouri to the Gulf of Mexico.

The budget request and the approved Committee allowance are shown on the following table:

MISSISSIPPI RIVER AND TRIBUTARIES

[In thousands of dollars]

Project title	Fiscal year 2009 budget request	Fiscal year 2010 recommendation
INVESTIGATIONS		
ALEXANDRIA TO THE GULF, LA .....	1,000	1,000
DONALDSONVILLE TO THE GULF, LA .....	400	400
COLDWATER RIVER BASIN BELOW ARKABUTLA LAKE, MS .....	84	350
MEMPHIS METRO AREA, STORM WATER MGMT STUDY, TN & MS .....	100	100
QUIVER RIVER, MS .....		160
SOUTHEAST ARKANSAS, AR .....		300
SPRING BAYOU, LA .....		350
COLLECTION AND STUDY OF BASIC DATA .....	500	1,665
CONSTRUCTION		
CHANNEL IMPROVEMENT, AR, IL, KY, LA, MS, MO, TN .....	47,721	47,721
GRAND PRAIRIE REGION, AR .....		10,000
MISSISSIPPI RIVER LEVEES, AR, IL, KY, LA, MS, MO & TN. ....	28,874	45,439
ST. FRANCIS BASIN, AR & MO .....		3,700
ATCHAFALAYA BASIN, FLOODWAY SYSTEM, LA .....	2,664	3,000
ATCHAFALAYA BASIN, LA .....	5,834	15,000

## MISSISSIPPI RIVER AND TRIBUTARIES—Continued

[In thousands of dollars]

Project title	Fiscal year 2009 budget request	Fiscal year 2010 recommendation
MISSISSIPPI DELTA REGION, LA .....	2,250	2,250
YAZOO BASIN—BIG SUNFLOWER RIVER, MS .....		3,200
YAZOO BASIN—DELTA HEADWATERS PROJECT, MS .....		23,200
YAZOO BASIN—MAIN STEM, MS .....		25
YAZOO BASIN—REFORMULATION UNIT, MS .....		1,500
YAZOO BASIN—UPPER YAZOO PROJECTS, MS .....		13,000
YAZOO BASIN—BACKWATER LESS ROCKY BAYOU .....		75
YAZOO BASIN—YAZOO BACKWATER, MS .....		629
OPERATION AND MAINTENANCE		
CHANNEL IMPROVEMENT, AR, IL, KY, LA, MS, MO & TN .....	67,350	67,350
HELENA HARBOR, PHILLIPS COUNTY, AR .....	211	400
INSPECTION OF COMPLETED WORKS, AR .....	425	425
LOWER ARKANSAS RIVER, NORTH BANK, AR .....	223	223
LOWER ARKANSAS RIVER, SOUTH BANK, AR .....	150	175
MISSISSIPPI RIVER LEVEES, AR, IL, KY, LA, MS, MO & TN .....	8,011	11,708
WHITE RIVER BACKWATER, AR .....	1,217	1,217
INSPECTION OF COMPLETED WORKS, IL .....	191	191
INSPECTION OF COMPLETED WORKS, KY .....	100	100
ATCHAFALAYA BASIN, FLOODWAY SYSTEM, LA .....	2,532	2,532
ATCHAFALAYA BASIN, LA .....	12,374	12,374
BATON ROUGE HARBOR, DEVIL SWAMP, LA .....	43	43
BAYOU COCODRIE AND TRIBUTARIES, LA .....	54	54
BONNET CARRE, LA .....	2,415	3,500
INSPECTION OF COMPLETED WORKS, LA .....	1,716	1,716
MISSISSIPPI DELTA REGION, CAERNARVON, LA .....	358	1,800
OLD RIVER, LA .....	9,739	10,200
LOWER RED RIVER, SOUTH BANK LEVEES, LA .....	100	100
TENSAS BASIN, BOEUF AND TENSAS RIVERS, AR & LA .....	2,485	2,485
TENSAS BASIN, RED RIVER BACKWATER, LA .....	3,660	3,660
GREENVILLE HARBOR, MS .....	24	500
INSPECTION OF COMPLETED WORKS, MS .....	25	25
VICKSBURG HARBOR, MS .....	42	537
YAZOO BASIN, ARKABUTLA LAKE, MS .....	6,091	6,870
YAZOO BASIN, BIG SUNFLOWER RIVER, MS .....	154	2,400
YAZOO BASIN, ENID LAKE, MS .....	5,915	7,640
YAZOO BASIN, GREENWOOD, MS .....	807	807
YAZOO BASIN, GRENADA LAKE, MS .....	6,331	7,381
YAZOO BASIN, MAIN STEM, MS .....	1,733	2,800
YAZOO BASIN, SARDIS LAKE, MS .....	7,329	9,183
YAZOO BASIN, TRIBUTARIES, MS .....	778	825
YAZOO BASIN, WILL M WHITTINGTON AUX CHAN, MS .....	332	400
YAZOO BASIN, YAZOO BACKWATER AREA, MS .....	544	544
YAZOO BASIN, YAZOO CITY, MS .....	731	731
INSPECTION OF COMPLETED WORKS, MO .....	150	150
ST. FRANCIS BASIN, AR & MO .....	6,243	9,843
WAPPAPELLO LAKE, MO .....	5,416	5,416
INSPECTION OF COMPLETED WORKS, TN .....	45	45
MEMPHIS HARBOR, MCKELLAR LAKE, TN .....	1,417	1,417
REMAINING ITEMS:		
MAPPING .....	1,112	1,112
REDUCTION FOR SAVINGS AND SLIPPAGE .....		—11,943
TOTAL .....	248,000	340,000

## GENERAL INVESTIGATIONS

*Quiver River, Mississippi.*—The Committee has recommended \$160,000 to continue studies to identify options for improving water quality while addressing other needs to create a situation where

additional development could be accommodated without adversely impacting fish and wildlife habitat.

*Southeast Arkansas, Arkansas.*—The Committee recommends \$300,000 to continue feasibility studies of current flooding, ecosystem restoration and water supply problems and needs throughout the 1.2 million-acre watershed.

#### CONSTRUCTION

*Grand Prairie, Arkansas.*—The Committee has recommended \$10,000,000 for continued construction of the project.

*Mississippi River Levees, Arkansas, Illinois, Kentucky, Louisiana, Mississippi, Missouri, and Tennessee.*—Additional funds above the budget request could be used for the following activities: to fully fund relief wells at Delta, Mississippi; Linda, Missouri; Vidalia-Moreville, Louisiana, Item 365-R; and continue design efforts.

*Yazoo Basin, Big Sunflower Basin, Mississippi.*—The Committee recognizes the need for control of bank erosion along the Big Sunflower River and has recommended \$3,200,000 for the continued construction of the Yazoo Basin, Big Sunflower River Project. \$2,00,000 is recommended to continue bank stabilization erosion repairs at selected sites in the Sunflower Basin.

The Committee expects the water quality funds to be used for the monitoring and establishment of water quality reference indicators and the development of Total Maximum Daily Loads target loads on Yazoo Basin projects.

*Yazoo Basin, Delta Headwaters Project, Mississippi.*—The Committee has recommended \$23,200,000 to continue construction of this erosion protection projects in the Yazoo Basin.

*Yazoo Basin, Upper Yazoo Project, Mississippi.*—The Committee has recommended \$13,000,000 to continue construction of this flood control project.

#### MAINTENANCE

*Mississippi River Levees, Arkansas, Illinois, Kentucky, Louisiana, Mississippi, Missouri and Tennessee.*—Funds provided above the budget request are recommended for resurfacing the mainline levee at various reaches to be determined throughout the Memphis District; levee slide repairs; provide gravel for levees; operation and maintenance of LMRMRIS [MV MISSISSIPPI IV]; and mitigation in the Vicksburg District.

*Mississippi Lakes.*—The Committee has recommended additional funding to address the maintenance backlog at Arkabutla, Sardis, Enid, and Grenada Lakes in Mississippi.

#### OPERATION AND MAINTENANCE, GENERAL

Appropriations, 2009 <sup>1</sup> .....	\$2,201,900,000
Budget estimate, 2010 .....	2,504,000,000
Committee recommendation .....	2,450,000,000

<sup>1</sup> Excludes emergency appropriations of \$2,117,875,000.

This appropriation funds operation, maintenance, and related activities at the water resources projects that the Corps operates and maintains. Work to be accomplished consists of dredging, repair, and operation of structures and other facilities, as authorized in

the various River and Harbor, Flood Control, and Water Resources Development Acts. Related activities include aquatic plant control, monitoring of completed projects where appropriate, removal of sunken vessels, and the collection of domestic waterborne commerce statistics.

The O&M budget request appears to have been increased by \$302,100,000 above the fiscal year 2009 enacted amount. However this is a little misleading. As was pointed out in the CG table, \$47,067,000 in projects appears to have been inadvertently funded under O&M rather than CG. Once these projects are shifted back to CG, the increase is still \$255,033,000 when compared to the fiscal year 2009 enacted amount. This moderate increase is a step in the right direction after years of flat budgets. The Committee also acknowledges that the administration has returned to the tradition of displaying the O&M budget on a project by project basis.

With the \$47,067,000 in CG items removed from the O&M request, the effective O&M request is \$2,456,933,000 rather than the \$2,504,000,000 presented in the budget request. A list of these migrated projects is displayed under the CG heading earlier in this report.

Maintenance of our aging water infrastructure inventory gets more expensive every year, however, it is consistently underfunded. If this trend continues, the Corps will not be able to maintain expected levels of service at all of its projects. The Committee has maintained its tradition of supporting what the budget request terms as "low use harbors and waterways". The Committee recognizes the importance of these facilities and will continue to provide funding for them. The Committee is pleased that the Administration provided a modest increase to O&M; however, this increase needs to be a commitment for upcoming fiscal years to provide the resources necessary to deal with our aging infrastructure.

#### CORPS OF ENGINEERS—OPERATION AND MAINTENANCE

[In thousands of dollars]

Project title	Budget estimate	Committee recommendation
<b>ALABAMA</b>		
ALABAMA-COOSA COMPREHENSIVE WATER STUDY, AL .....	253	253
ALABAMA RIVER LAKES, AL .....	16,785	16,785
BLACK WARRIOR AND TOMBIGBEE RIVERS, AL .....	24,180	24,180
GULF INTRACOASTAL WATERWAY, AL .....	5,735	5,735
MOBILE HARBOR, AL .....	23,996	23,996
PROJECT CONDITION SURVEYS, AL .....	100	100
TENNESSEE-TOMBIGBEE WATERWAY WILDLIFE MITIGATION, AL & .....	2,100	2,500
TENNESSEE-TOMBIGBEE WATERWAY, AL & MS .....	22,978	25,000
WALTER F. GEORGE LOCK AND DAM, AL & GA .....	8,972	8,972
WATER/ENVIRONMENTAL CERTIFICATION, AL .....	76	76
<b>ALASKA</b>		
ANCHORAGE HARBOR, AK .....	18,659	18,659
CHENA RIVER LAKES, AK .....	2,816	2,816
DILLINGHAM HARBOR, AK .....	885	885
HOMER HARBOR, AK .....	400	400
KODIAK HARBOR, AK .....	.....	240
INSPECTION OF COMPLETED WORKS, AK .....	168	168
NOME HARBOR, AK .....	820	820
PETERSBURG NORTH HARBOR, AK .....	.....	500

## CORPS OF ENGINEERS—OPERATION AND MAINTENANCE—Continued

[In thousands of dollars]

Project title	Budget estimate	Committee recommendation
PROJECT CONDITION SURVEYS, AK .....	930	930
ARIZONA		
ALAMO LAKE, AZ .....	1,542	1,542
INSPECTION OF COMPLETED WORKS, AZ .....	199	199
PAINTED ROCK DAM, AZ .....	1,320	1,320
SCHEDULING RESERVOIR OPERATIONS, AZ .....	31	31
WHITLOW RANCH DAM, AZ .....	300	300
ARKANSAS		
BEAVER LAKE, AR .....	8,864	8,864
BLAKELY MT DAM, LAKE OUACHITA, AR .....	6,579	7,079
BLUE MOUNTAIN LAKE, AR .....	1,914	1,914
BULL SHOALS LAKE, AR .....	14,234	14,484
DARDANELLE LOCK & DAM, AR .....	9,754	9,754
DEGRAY LAKE, AR .....	6,503	7,003
DEQUEEN LAKE, AR .....	1,752	1,752
DIERKS LAKE, AR .....	1,360	1,360
GILLHAM LAKE, AR .....	1,366	1,366
GREERS FERRY LAKE, AR .....	7,759	7,759
HELENA HARBOR, AR .....	40	40
INSPECTION OF COMPLETED WORKS, AR .....	673	673
MCCLELLAN-KERR ARKANSAS RIVER NAVIGATION SYSTEM, AR .....	40,016	40,016
MILLWOOD LAKE, AR .....	5,122	5,122
NARROWS DAM, LAKE GREESON, AR .....	4,505	5,005
NIMROD LAKE, AR .....	2,289	2,289
NORFORK LAKE, AR .....	5,717	5,717
OSCEOLA HARBOR, AR .....	397	800
OUACHITA AND BLACK RIVERS, AR AND LA .....	9,605	9,605
OZARK-JETA TAYLOR LOCK & DAM, AR .....	5,725	5,725
WHITE RIVER, AR .....	40	40
YELLOW BEND PORT, AR .....	4	115
CALIFORNIA		
BLACK BUTTE LAKE, CA .....	2,234	2,234
BUCHANAN DAM, HV EASTMAN LAKE, CA .....	2,041	2,041
COYOTE VALLEY DAM, LAKE MENDOCINO, CA .....	3,829	3,829
DRY CREEK (WARM SPRINGS) LAKE & CHANNEL, CA .....	5,139	5,139
FARMINGTON DAM, CA .....	481	481
HIDDEN DAM, HENSLEY LAKE, CA .....	2,170	2,170
HUMBOLDT HARBOR AND BAY, CA .....	3,010	3,010
INSPECTION OF COMPLETED WORKS, CA .....	6,702	6,702
ISABELLA LAKE, CA .....	1,802	1,802
LOS ANGELES COUNTY DRAINAGE AREA, CA .....	4,597	4,597
MARINA DEL REY, CA .....		3,000
MERCED COUNTY STREAMS, CA .....	451	451
MOJAVE RIVER DAM, CA .....	288	288
MORRO BAY HARBOR, CA .....	3,300	3,300
NEW HOGAN LAKE, CA .....	2,515	2,515
NEW MELONES LAKE, DOWNSTREAM CHANNEL, CA .....	1,898	1,898
NEWPORT BAY HARBOR, CA .....	1,780	1,780
OAKLAND HARBOR, CA .....	9,255	9,255
OCEANSIDE HARBOR, CA .....	1,500	1,500
PINE FLAT LAKE, CA .....	3,201	3,201
PROJECT CONDITION SURVEYS, CA .....	2,442	2,442
REDWOOD CITY HARBOR .....	6,745	6,745
RICHMOND HARBOR, CA .....	9,589	9,589
SACRAMENTO RIVER (30-FOOT PROJECT), CA .....	3,351	3,351
SACRAMENTO RIVER AND TRIBUTARIES (DEBRIS CONTROL), CA .....	1,712	1,712
SACRAMENTO RIVER SHALLOW DRAFT CHANNEL, CA .....	234	234
SAN FRANCISCO BAY, DELTA MODEL STRUCTURE, CA .....	1,118	1,118

## CORPS OF ENGINEERS—OPERATION AND MAINTENANCE—Continued

[In thousands of dollars]

Project title	Budget estimate	Committee recommendation
SAN FRANCISCO HARBOR AND BAY, CA (DRIFT REMOVAL) .....	2,945	2,945
SAN FRANCISCO HARBOR, CA .....	3,237	3,237
SAN JOAQUIN RIVER, PORT OF STOCKTON, CA .....	3,554	3,554
SAN PABLO BAY AND MARE ISLAND STRAIT, CA .....	2,650	2,650
SANTA ANA RIVER BASIN, CA .....	3,094	3,094
SANTA BARBARA HARBOR, CA .....	1,690	1,690
SCHEDULING RESERVOIR OPERATIONS, CA .....	1,915	1,915
SUCCESS LAKE, CA .....	1,989	1,989
SUISUN BAY CHANNEL, CA .....	4,019	4,019
TERMINUS DAM, LAKE KAWEAH, CA .....	2,037	2,037
VENTURA HARBOR, CA .....	6,426	6,426
YUBA RIVER, CA .....	146	146
COLORADO		
BEAR CREEK LAKE, CO .....	395	395
CHATFIELD LAKE, CO .....	1,442	1,442
CHERRY CREEK LAKE, CO .....	1,999	1,999
INSPECTION OF COMPLETED WORKS, CO .....	773	773
JOHN MARTIN RESERVOIR, CO .....	2,554	2,554
SCHEDULING RESERVOIR OPERATIONS, CO .....	612	612
TRINIDAD LAKE, CO .....	960	960
CONNECTICUT		
BLACK ROCK LAKE, CT .....	1,436	1,436
COLEBROOK RIVER LAKE, CT .....	615	615
HANCOCK BROOK LAKE, CT .....	442	442
HOP BROOK LAKE, CT .....	917	917
INSPECTION OF COMPLETED WORKS, CT .....	392	392
LONG ISLAND SOUND DMMP, CT .....	2,000	2,000
MANSFIELD HOLLOW LAKE, CT .....	861	861
MYSTIC RIVER, CT .....	250	250
NORTHFIELD BROOK LAKE, CT .....	610	610
NORWALK HARBOR, CT .....	.....	1,000
PROJECT CONDITION SURVEYS, CT .....	1,050	1,050
STAMFORD HURRICANE BARRIER, CT .....	434	434
THOMASTON DAM, CT .....	1,136	1,136
WEST THOMPSON LAKE, CT .....	569	569
DELAWARE		
DELAWARE BAY COASTLINE, ROOSEVELT INLET TO LEWES BEACH .....	350	.....
HARBOR OF REFUGE, LEWES, DE .....	.....	200
INTRACOASTAL WATERWAY, DELAWARE R TO CHESAPEAKE BAY, D .....	28,390	28,390
INTRACOASTAL WATERWAY, REHOBOTH BAY TO DELAWARE BAY, D .....	70	70
MISPILLION RIVER, DE .....	30	30
MURDERKILL RIVER, DE .....	30	30
PROJECT CONDITION SURVEYS, DE .....	105	105
WILMINGTON HARBOR, DE .....	320	2,320
DISTRICT OF COLUMBIA		
INSPECTION OF COMPLETED WORKS, DC .....	140	140
POTOMAC AND ANACOSTIA RIVER, DC (DRIFT REMOVAL) .....	805	805
PROJECT CONDITION SURVEYS, DC .....	30	30
WASHINGTON HARBOR, DC .....	25	25
FLORIDA		
CANAVERAL HARBOR, FL .....	4,600	4,600
CENTRAL & SOUTHERN FLORIDA, FL .....	23,876	23,876
ESCAMBIA AND CONECHU RIVERS, FL .....	56	56
FERNANDINA HARBOR, FL .....	1,625	1,625
INSPECTION OF COMPLETED WORKS, FL .....	1,200	1,200
INTRACOASTAL WATERWAY, CALOOSAHATCHEE RIVER TO ANCLOTE .....	780	2,000

## CORPS OF ENGINEERS—OPERATION AND MAINTENANCE—Continued

[In thousands of dollars]

Project title	Budget estimate	Committee recommendation
INTRACOASTAL WATERWAY, JACKSONVILLE TO MIAMI, FL .....	500	689
JACKSONVILLE HARBOR, FL <sup>1</sup> .....	7,035	6,035
JIM WOODRUFF LOCK AND DAM, LAKE SEMINOLE, FL, AL & GA .....	9,732	9,732
OKEECHOBEE WATERWAY, FL .....	2,357	2,357
PALM BEACH HARBOR, FL .....	3,225	3,225
PANAMA CITY HARBOR, FL .....	2,055	2,055
PENSACOLA HARBOR, FL .....	67	67
PONCE DE LEON INLET, FL .....	600	600
PORT ST. JOE, FL, DMMP .....	.....	500
PROJECT CONDITION SURVEYS, FL .....	1,300	1,300
REMOVAL OF AQUATIC GROWTH, FL .....	4,445	4,445
SCHEDULING RESERVOIR OPERATIONS, FL .....	30	30
ST. LUCIE INLET, FL .....	350	350
TAMPA HARBOR, FL .....	5,620	5,620
WATER/ENVIRONMENTAL CERTIFICATION, FL .....	380	380
GEORGIA		
ALLATOONA LAKE, GA .....	7,077	7,077
APALACHICOLA, CHATTAHOOCHEE AND FLINT RIVERS, GA, AL & .....	2,437	2,437
ATLANTIC INTRACOASTAL WATERWAY, GA .....	265	1,000
BRUNSWICK HARBOR, GA .....	7,156	7,156
BUFORD DAM AND LAKE SIDNEY LANIER, GA .....	8,924	8,924
CARTERS DAM AND LAKE, GA .....	8,318	8,318
HARTWELL LAKE, GA & SC .....	11,999	11,999
INSPECTION OF COMPLETED ENVIRONMENTAL PROJECTS, GA .....	48	48
INSPECTION OF COMPLETED WORKS, GA .....	108	108
J STROM THURMOND LAKE, GA & SC .....	10,316	10,316
PROJECT CONDITION SURVEYS, GA .....	151	151
RICHARD B RUSSELL DAM & LAKE, GA & SC .....	9,209	9,209
SAVANNAH HARBOR, GA <sup>1</sup> .....	15,087	14,187
SAVANNAH RIVER BELOW AUGUSTA, GA .....	274	574
WEST POINT DAM AND LAKE, GA & AL .....	9,591	9,591
HAWAII		
BARBERS POINT HARBOR, HI .....	201	201
INSPECTION OF COMPLETED WORKS, HI .....	705	705
PROJECT CONDITION SURVEYS, HI .....	570	570
IDAHO		
ALBENI FALLS DAM, ID .....	1,545	1,545
DWORKSHAK DAM AND RESERVOIR, ID .....	2,875	2,875
INSPECTION OF COMPLETED WORKS, ID .....	324	324
LUCKY PEAK LAKE, ID .....	2,597	2,597
SCHEDULING RESERVOIR OPERATIONS, ID .....	484	484
ILLINOIS		
CALUMET HARBOR AND RIVER, IL & IN <sup>1</sup> .....	4,621	3,120
CARLYLE LAKE, IL .....	5,171	5,171
CHICAGO HARBOR, IL .....	3,889	3,889
CHICAGO RIVER, IL .....	493	493
FARM CREEK RESERVOIRS, IL .....	352	352
ILLINOIS WATERWAY, IL & IN (MVR PORTION) .....	1,748	2,648
ILLINOIS WATERWAY, IL & IN (MVS PORTION) .....	31,736	31,736
INSPECTION OF COMPLETED ENVIRONMENTAL PROJECTS, IL .....	65	65
INSPECTION OF COMPLETED WORKS, IL .....	1,298	1,298
KASKASKIA RIVER NAVIGATION, IL .....	2,148	2,148
LAKE MICHIGAN DIVERSION, IL .....	683	683
LAKE SHELBYVILLE, IL .....	5,454	5,454
MISSISSIPPI RIVER BETWEEN MISSOURI RIVER AND MINNEAPOLIS .....	58,714	58,714
MISSISSIPPI RIVER BTWN MISSOURI RIVER AND MINNEAPOLIS .....	22,227	22,227
PROJECT CONDITION SURVEYS, IL .....	104	104

## CORPS OF ENGINEERS—OPERATION AND MAINTENANCE—Continued

[In thousands of dollars]

Project title	Budget estimate	Committee recommendation
REND LAKE, IL .....	5,386	5,386
SURVEILLANCE OF NORTHERN BOUNDARY WATERS, IL .....	685	685
WAUKEGAN HARBOR, IL .....	492	492
INDIANA		
BROOKVILLE LAKE, IN .....	862	862
BURNS WATERWAY HARBOR, IN .....	165	165
CAGLES MILL LAKE, IN .....	892	892
CECIL M. HARDEN LAKE, IN .....	1,027	1,027
INDIANA HARBOR, CONFINED DISPOSAL FACILITY, IN <sup>1</sup> .....	13,500	.....
INDIANA HARBOR, IN .....	2,330	2,330
INSPECTION OF COMPLETED WORKS, IN .....	709	709
J. EDWARD ROUSH LAKE, IN .....	944	944
MISSISSINAWA LAKE, IN .....	974	974
MONROE LAKE, IN .....	1,101	1,101
PATOKA LAKE, IN .....	887	887
PROJECT CONDITION SURVEYS, IN .....	185	185
SALAMONIE LAKE, IN .....	904	904
SURVEILLANCE OF NORTHERN BOUNDARY WATERS, IN .....	126	126
IOWA		
CORALVILLE LAKE, IA .....	3,381	3,381
INSPECTION OF COMPLETED WORKS, IA .....	483	483
MISSOURI RIVER—KENSLEERS BEND, NE TO SIOUX CITY, IA .....	129	129
MISSOURI RIVER—RULO TO THE MOUTH, IA, KS, MO & NE .....	6,059	7,000
MISSOURI RIVER—SIOUX CITY TO RULO, IA, KS, MO & NE .....	2,610	2,610
RATHBUN LAKE, IA .....	3,019	3,019
RED ROCK DAM AND LAKE, RED ROCK, IA .....	3,978	4,567
SAYLORVILLE LAKE, IA .....	4,685	5,032
KANSAS		
CLINTON LAKE, KS .....	2,073	2,073
COUNCIL GRAVE LAKE, KS .....	1,739	1,739
EL DORADO LAKE, KS .....	786	786
ELK CITY LAKE, KS .....	718	718
FALL RIVER LAKE, KS .....	1,283	1,283
HILLSDALE LAKE, KS .....	860	860
INSPECTION OF COMPLETED WORKS, KS .....	220	220
JOHN REDMOND DAM AND RESERVOIR, KS .....	3,685	3,685
KANOPOLIS LAKE, KS .....	2,288	2,288
MARION LAKE, KS .....	1,820	1,820
MELVERN LAKE, KS .....	2,151	2,151
MILFORD LAKE, KS .....	2,057	2,057
PEARSON-SKUBITZ BILL HILL LAKE, KS .....	1,472	1,472
PERRY LAKE, KS .....	2,015	2,015
POMONA LAKE, KS .....	2,047	2,047
SCHEDULING RESERVOIR OPERATIONS, KS .....	100	100
TORONTO LAKE, KS .....	3,522	3,522
TUTTLE CREEK LAKE, KS .....	2,062	2,062
WILSON LAKE, KS .....	1,717	2,017
KENTUCKY		
BARKLEY DAM AND LAKE, BARKLEY, KY & TN .....	10,393	10,393
BARREN RIVER LAKE, KY .....	2,514	2,514
BIG SANDY HARBOR, KY .....	1,710	1,710
BUCKHORN LAKE, KY .....	1,585	1,585
CARR CREEK LAKE, KY .....	1,737	1,737
CAVE RUN LAKE, KY .....	926	926
DEWEY LAKE, KY .....	1,775	1,775
ELVIS STAHR (HICKMAN) HARBOR, KY .....	40	40
FISHTRAP LAKE, KY .....	2,171	2,171



## CORPS OF ENGINEERS—OPERATION AND MAINTENANCE—Continued

[In thousands of dollars]

Project title	Budget estimate	Committee recommendation
GRAYSON LAKE, KY .....	1,709	1,709
GREEN AND BARREN RIVERS, KY .....	1,880	1,880
GREEN RIVER LAKE, KY .....	2,202	2,202
INSPECTION OF COMPLETED WORKS, KY .....	665	665
KENTUCKY RIVER, KY .....	10	10
LAUREL RIVER LAKE, KY .....	1,927	1,927
MARTINS FORK LAKE, KY .....	814	814
MIDDLESBORO CUMBERLAND RIVER BASIN, KY .....	113	113
NOLIN LAKE, KY .....	2,477	2,477
OHIO RIVER LOCKS AND DAMS, KY, IL, IN & OH .....	40,748	40,748
OHIO RIVER OPEN CHANNEL WORK, KY, IL, IN & OH .....	5,836	5,836
PAINTSVILLE LAKE, KY .....	1,231	1,231
ROUGH RIVER LAKE, KY .....	2,742	2,742
TAYLORSVILLE LAKE, KY .....	1,104	1,104
WOLF CREEK DAM, LAKE CUMBERLAND, KY .....	7,835	7,835
YATESVILLE LAKE, KY .....	1,143	1,143
LOUISIANA		
ATCHAFALAYA RIVER AND BAYOUS CHENE, BOEUF & BLACK, LA .....	11,640	11,640
BARATARIA BAY WATERWAY, LA .....	165	165
BAYOU BODCAU RESERVOIR, LA .....	954	954
BAYOU LAFOURCHE AND LAFOURCHE JUMP WATERWAY, LA .....	1,211	1,211
BAYOU PIERRE, LA .....	24	24
BAYOU SEGNETTE WATERWAY, LA .....	49	49
BAYOU TECHE AND VERMILLION RIVER, LA .....	15	15
BAYOU TECHE, LA .....	200	200
CADDO LAKE, LA .....	224	224
CALCASIEU RIVER AND PASS, LA .....	17,968	23,968
FRESHWATER BAYOU, LA .....	2,235	2,235
GULF INTRACOASTAL WATERWAY, LA .....	24,777	24,777
HOUMA NAVIGATION CANAL, LA .....	2,569	2,569
INSPECTION OF COMPLETED WORKS, LA .....	1,487	1,487
J BENNETT JOHNSTON WATERWAY, LA .....	10,598	13,598
LAKE PROVIDENCE HARBOR, LA .....	22	500
MADISON PARISH PORT, LA .....	7	99
MERMENTAU RIVER, LA .....	1,913	1,913
MISSISSIPPI RIVER OUTLETS AT VENICE, LA .....	2,838	2,838
MISSISSIPPI RIVER, BATON ROUGE TO THE GULF OF MEXICO, .....	54,994	54,994
PROJECT CONDITION SURVEYS, LA .....	65	65
REMOVAL OF AQUATIC GROWTH, LA .....	1,410	1,410
WALLACE LAKE, LA .....	244	244
WATERWAY FROM EMPIRE TO THE GULF, LA .....	47	47
WATERWAY FROM INTRACOASTAL WATERWAY TO BAYOU DULAC, LA .....	48	48
MAINE		
BASS HARBOR, TREMONT, ME .....	.....	60
BUCKS HARBOR, MACHIASPORT, ME .....	.....	750
DISPOSAL AREA MONITORING, ME .....	1,000	1,000
INSPECTION OF COMPLETED WORKS, ME .....	215	215
INTERNATIONAL WATER STUDIES, ME .....	17	17
PROJECT CONDITION SURVEYS, ME .....	750	750
MARYLAND		
ASSATEAGUE, MD .....	1,000	.....
BALTIMORE HARBOR AND CHANNEL (50 FOOT), MD .....	15,513	20,000
BALTIMORE HARBOR, MD (DRIFT REMOVAL) .....	360	360
CUMBERLAND, MD AND RIDGELEY, WV .....	177	177
INSPECTION OF COMPLETED WORKS, MD .....	155	155
JENNINGS RANDOLPH LAKE, MD & WV .....	1,779	1,779
OCEAN CITY HARBOR AND INLET AND SINEPUXENT BAY, MD .....	.....	1,400
POPLAR ISLAND, MD .....	8,200	.....

## CORPS OF ENGINEERS—OPERATION AND MAINTENANCE—Continued

[In thousands of dollars]

Project title	Budget estimate	Committee recommendation
PROJECT CONDITION SURVEYS, MD .....	400	400
SCHEDULING RESERVOIR OPERATIONS, MD .....	108	108
SOMERSET COUNTY CHANNELS, MD .....		1,000
WICOMICO RIVER, MD .....	1,676	1,676
MASSACHUSETTS		
BARRE FALLS DAM, MA .....	753	753
BIRCH HILL DAM, MA .....	1,203	1,203
BOSTON HARBOR, MA .....	7,000	7,000
BUFFUMVILLE LAKE, MA .....	836	836
CAPE COD CANAL, MA .....	13,263	13,263
CHARLES RIVER NATURAL VALLEY STORAGE AREA, MA .....	275	275
CONANT BROOK LAKE, MA .....	210	210
EAST BRIMFIELD LAKE, MA .....	950	950
HODGES VILLAGE DAM, MA .....	567	567
INSPECTION OF COMPLETED WORKS, MA .....	414	414
KNIGHTVILLE DAM, MA .....	1,421	1,421
LITTLEVILLE LAKE, MA .....	889	889
NEW BEDFORD AND FAIRHAVEN HARBOR, MA .....	500	500
NEW BEDFORD FAIRHAVEN AND ACUSHNET HURRICANE BARRIER, .....	619	619
NEWBURYPORT HARBOR, MA .....		350
PLYMOUTH HARBOR, MA .....	200	200
PROJECT CONDITION SURVEYS, MA .....	1,200	1,200
TULLY LAKE, MA .....	666	666
WEST HILL DAM, MA .....	572	572
WESTVILLE LAKE, MA .....	784	784
MICHIGAN		
CHANNELS IN LAKE ST. CLAIR, MI .....	1,636	1,636
CHARLEVOIX HARBOR, MI .....	203	203
DETROIT RIVER, MI .....	5,415	5,415
GRAND HAVEN HARBOR, MI .....	820	820
HOLLAND HARBOR, MI .....	2,151	2,151
INSPECTION OF COMPLETED WORKS, MI .....	158	158
KEWEENAW WATERWAY, MI .....	37	37
MICHIGAN HARBOR DREDGING, MI .....		7,000
ALPENA HARBOR, MI .....		
ARCADIA HARBOR, MI .....		
AU SABLE, MI .....		
BAY PORT HARBOR, MI .....		
BIG BAY HARBOR, MI .....		
BLACK RIVER (GOGEVIC), MI .....		
BOLLES HARBOR, MI .....		
CLINTON RIVER, MI .....		
EAGLE HARBOR, MI .....		
FRANKFORT HARBOR, MI .....		
GRAND MARAIS HARBOR, MI .....		
INLAND ROUTE, MI .....		
LAC LA BELLE HARBOR, MI .....		
LELAND HARBOR, MI .....		
LES CHENEUX ISLAND CHANNELS, MI .....		
LEXINGTON HARBOR, MI .....		
LITTLE LAKE HARBOR, MI .....		
LUDINGTON HARBOR, MI .....		
MANISTEE HARBOR, MI .....		
MANISTIQUE HARBOR, MI .....		
MARQUETTE HARBOR, MI .....		
MENOMINEE HARBOR, MI .....		
NEW BUFFALO HARBOR, MI .....		
PENTWATER HARBOR, MI .....		
POINT LOOKOUT HARBOR, MI .....		

## CORPS OF ENGINEERS—OPERATION AND MAINTENANCE—Continued

[In thousands of dollars]

Project title	Budget estimate	Committee recommendation
PORT AUSTIN HARBOR, MI .....	.....	.....
PORT SANILAC HARBOR, MI .....	.....	.....
PORTAGE HARBOR, MI .....	.....	.....
ROUGE RIVER, MI .....	.....	.....
SAUGATUCK HARBOR, MI .....	.....	.....
SOUTH HAVEN HARBOR, MI .....	.....	.....
WHITE LAKE HARBOR, MI .....	.....	.....
ONTONAGON HARBOR, MI .....	1,122	1,122
PRESQUE ISLE HARBOR, MI .....	335	335
PROJECT CONDITION SURVEYS, MI .....	410	410
SAGINAW RIVER, MI .....	3,624	3,624
SEBEWAING RIVER, MI .....	1,200	1,200
ST. CLAIR RIVER, MI .....	533	533
ST. JOSEPH HARBOR, MI .....	755	755
ST. MARYS RIVER, MI .....	23,010	23,010
SURVEILLANCE OF NORTHERN BOUNDARY WATERS, MI .....	2,612	2,612
MINNESOTA		
BIGSTONE LAKE—WHETSTONE RIVER, MN & SD .....	276	276
DULUTH-SUPERIOR HARBOR, MN & WI .....	5,985	5,985
INSPECTION OF COMPLETED WORKS, MN .....	633	633
LAC QUI PARLE LAKES, MINNESOTA RIVER, MN .....	627	627
MINNESOTA RIVER, MN .....	256	256
MISSISSIPPI RIVER BETWEEN MISSOURI RIVER AND MINNEAPOLIS .....	44,130	44,130
ORWELL LAKE, MN .....	533	533
PROJECT CONDITION SURVEYS, MN .....	82	82
RED LAKE RESERVOIR, MN .....	150	150
RESERVOIRS AT HEADWATERS OF MISSISSIPPI RIVER, MN .....	3,398	3,398
SURVEILLANCE OF NORTHERN BOUNDARY WATERS, MN .....	359	359
TWO HARBORS, MN .....	350	350
MISSISSIPPI		
BILOXI HARBOR, MS .....	1,250	1,250
CLAIBORNE COUNTY PORT, MS .....	2	74
EAST FORK, TOBIGBEE RIVER, MS .....	187	187
GULFPORT HARBOR, MS .....	3,470	5,000
INSPECTION OF COMPLETED WORKS, MS .....	183	183
MOUTH OF YAZOO RIVER, MS .....	40	112
OKATIBBEE LAKE, MS .....	1,703	1,703
PASCAGOULA HARBOR, MS .....	7,505	10,900
PEARL RIVER, MS & LA .....	193	193
PROJECT CONDITION SURVEYS, MS .....	75	75
ROSEDALE HARBOR, MS .....	15	600
WATER/ENVIRONMENTAL CERTIFICATION, MS .....	66	66
YAZOO RIVER, MS .....	35	154
MISSOURI		
CARUTHERSVILLE HARBOR, MO .....	40	800
CLARENCE CANNON DAM AND MARK TWAIN LAKE, MO .....	6,813	6,813
CLEARWATER LAKE, MO .....	2,933	3,018
HARRY S TRUMAN DAM AND RESERVOIR, MO .....	9,393	9,393
INSPECTION OF COMPLETED WORKS, MO .....	1,491	1,491
LITTLE BLUE RIVER LAKES, MO .....	845	845
LONG BRANCH LAKE, MO .....	949	949
MISSISSIPPI RIVER BTWN THE OHIO AND MISSOURI RIVERS (R .....	23,403	23,403
NEW MADRID HARBOR, MO .....	90	400
NEW MADRID HARBOR (MILE 889), MO .....	40	240
POMME DE TERRE LAKE, MO .....	2,231	2,231
SCHEDULING RESERVOIR OPERATIONS, MO .....	327	327
SMITHVILLE LAKE, MO .....	1,850	1,850
STOCKTON LAKE, MO .....	4,370	4,370

## CORPS OF ENGINEERS—OPERATION AND MAINTENANCE—Continued

[In thousands of dollars]

Project title	Budget estimate	Committee recommendation
TABLE ROCK LAKE, MO & AR .....	7,550	7,550
UNION LAKE, MO .....	6	6
MONTANA		
FT. PECK DAM AND LAKE, MT .....	6,361	6,361
INSPECTION OF COMPLETED WORKS, MT .....	115	115
LIBBY DAM, MT .....	1,948	1,948
SCHEDULING RESERVOIR OPERATIONS, MT .....	145	145
NEBRASKA		
GAVINS POINT DAM, LEWIS AND CLARK LAKE, NE AND SD .....	8,165	8,165
HARLAN COUNTY LAKE, NE .....	2,312	2,312
INSPECTION OF COMPLETED WORKS, NE .....	714	714
PAPILLION CREEK, NE .....	847	847
SALT CREEK AND TRIBUTARIES, NE .....	1,079	1,079
NEVADA		
INSPECTION OF COMPLETED WORKS, NV .....	63	63
MARTIS CREEK LAKE, CA & NV .....	1,192	1,192
PINE AND MATHEWS CANYONS LAKES, NV .....	341	341
NEW HAMPSHIRE		
BLACKWATER DAM, NH .....	610	610
COCHECO RIVER DREDGING PROJECT, NH .....		2,000
EDWARD MACDOWELL LAKE, NH .....	560	560
FRANKLIN FALLS DAM, NH .....	1,921	1,921
HOPKINTON-EVERETT LAKES, NH .....	1,148	1,148
INSPECTION OF COMPLETED WORKS, NH .....	126	126
OTTER BROOK LAKE, NH .....	553	553
PORTSMOUTH HARBOR AND PISCATAQUA RIVER, NH .....	500	500
PROJECT CONDITION SURVEYS, NH .....	275	275
SURRY MOUNTAIN LAKE, NH .....	760	760
NEW JERSEY		
ABSECON INLET, NJ .....		250
BARNEGAT INLET, NJ .....	225	225
CAPE MAY INLET TO LOWER TOWNSHIP, NJ .....	200	
COLD SPRING INLET, NJ .....	250	250
DELAWARE RIVER AT CAMDEN, NJ .....	15	15
DELAWARE RIVER, PHILADELPHIA TO THE SEA, NJ, PA & DE .....	19,600	19,600
DELAWARE RIVER, PHILADELPHIA, PA TO TRENTON, NJ .....	820	820
INSPECTION OF COMPLETED WORKS, NJ .....	205	205
LOWER CAPE MAY MEADOWS, CAPE MAY POINT, NJ .....	400	
MANASQUAN RIVER, NJ .....	160	160
NEW JERSEY INTRACOASTAL WATERWAY, NJ .....	250	250
NEWARK BAY, HACKENSACK AND PASSAIC RIVERS, NJ .....	150	150
PASSAIC RIVER FLOOD WARNING SYSTEM, NJ .....	553	553
PROJECT CONDITION SURVEYS, NJ .....	1,653	1,653
RARITAN RIVER TO ARTHUR KILL CUT-OFF, NJ .....	200	200
RARITAN RIVER, NJ .....	120	500
SALEM RIVER, NJ .....	100	100
SHARK RIVER, NJ .....	400	400
SHOAL HARBOR AND COMPTON CREEK, NJ .....	80	80
NEW MEXICO		
ABIQUIU DAM, NM .....	3,305	3,305
COCHITI LAKE, NM .....	6,876	6,876
CONCHAS LAKE, NM .....	1,796	1,796
GALISTEO DAM, NM .....	591	591
INSPECTION OF COMPLETED WORKS, NM .....	639	639
JEMEZ CANYON DAM, NM .....	756	756

## CORPS OF ENGINEERS—OPERATION AND MAINTENANCE—Continued

[In thousands of dollars]

Project title	Budget estimate	Committee recommendation
MIDDLE RIO GRANDE ENDANGERED SPECIES COLLABORATIVE PRO .....	3,150	3,150
SANTA ROSA DAM AND LAKE, NM .....	1,099	1,099
SCHEDULING RESERVOIR OPERATIONS, NM .....	477	477
TWO RIVERS DAM, NM .....	404	404
UPPER RIO GRANDE WATER OPERATIONS MODEL STUDY, NM .....	4,188	4,188
NEW YORK		
ALMOND LAKE, NY .....	524	524
ARKPORT DAM, NY .....	298	298
BLACK ROCK CHANNEL AND TONAWANDA HARBOR, NY .....	1,503	1,503
BUFFALO HARBOR, NY .....	1,325	1,325
BUTTERMILK CHANNEL, NY .....	1,760	1,760
EAST RIVER, NY .....	300	300
EAST ROCKAWAY INLET, NY .....	2,950	2,950
EAST SIDNEY LAKE, NY .....	588	588
EASTCHESTER CREEK, NY .....	4,090	4,090
FIRE ISLAND INLET TO JONES INLET, NY .....	150	150
FLUSHING BAY AND CREEK, NY .....	60	60
GREAT KILLS HARBOR, S.I., NY .....	60	60
GREAT SOUTH BAY, NY .....	60	60
HUDSON RIVER CHANNEL, NY .....	60	60
HUDSON RIVER, NY (MAINT) .....	1,270	1,270
HUDSON RIVER, NY (O & C) .....	1,550	1,550
INSPECTION OF COMPLETED WORKS, NY .....	898	898
JAMAICA BAY, NY .....	220	220
JONES INLET, NY .....	150	150
LAKE MONTAUK HARBOR, NY .....	100	100
LITTLE SODUS BAY HARBOR, NY .....	5	5
LONG ISLAND INTRACOASTAL WATERWAY, NY .....	100	100
MATTITUCK HARBOR, NY .....	60	60
MORICHES INLET, NY .....	100	100
MOUNT MORRIS DAM, NY .....	2,696	2,696
NEW YORK AND NEW JERSEY CHANNELS, NY .....	4,100	4,100
NEW YORK HARBOR, NY .....	3,698	3,698
NEW YORK HARBOR, NY & NJ (PREVENTION OF OBSTRUCTIVE DE .....	1,045	1,045
NEW YORK HARBOR, NY & NJ (DRIFT REMOVAL) .....	7,000	7,000
NEWTOWN CREEK, NY .....	150	150
OGDENSBURG HARBOR, NY .....	.....	70
OSWEGO HARBOR, NY .....	.....	300
PORT CHESTER HARBOR, NY .....	60	60
PROJECT CONDITION SURVEYS, NY .....	2,123	2,123
ROCHESTER HARBOR, NY .....	5	5
SHINNECOCK INLET, NY .....	100	100
SOUTHERN NEW YORK FLOOD CONTROL PROJECTS, NY .....	807	807
SURVEILLANCE OF NORTHERN BOUNDARY WATERS, NY .....	579	579
WESTCHESTER CREEK, NY .....	100	100
WHITNEY POINT LAKE, NY .....	685	685
NORTH CAROLINA		
ATLANTIC INTRACOASTAL WATERWAY, NC .....	4,300	4,300
B. EVERETT JORDAN DAM AND LAKE, NC .....	1,898	1,898
BEAUFORT HARBOR, NC .....	.....	250
BOGUE INLET, NC .....	.....	650
CAPE FEAR RIVER ABOVE WILMINGTON, NC .....	988	988
CAROLINA BEACH INLET, NC .....	.....	500
FALLS LAKE, NC .....	1,859	1,859
INSPECTION OF COMPLETED WORKS, NC .....	244	244
LOCKWOODS FOLLY RIVER, NC .....	.....	600
MANTEO (SHALLOWBAG) BAY, NC .....	3,945	3,945
MASONBORO INLET AND CONNECTING CHANNELS, NC .....	2,300	2,300
MOREHEAD CITY HARBOR, NC .....	9,500	9,500

## CORPS OF ENGINEERS—OPERATION AND MAINTENANCE—Continued

[In thousands of dollars]

Project title	Budget estimate	Committee recommendation
NEW RIVER INLET, NC .....	700	700
NEW TOPSAIL INLET, NC .....	.....	600
PROJECT CONDITION SURVEYS, NC .....	295	295
ROLLINSON CHANNEL, NC .....	50	50
SILVER LAKE HARBOR, NC .....	250	250
W. KERR SCOTT DAM AND RESERVOIR, NC .....	3,421	3,421
WILMINGTON HARBOR, NC .....	12,155	12,155
NORTH DAKOTA		
BOWMAN HALEY, ND .....	350	350
GARRISON DAM, LAKE SAKAKAWEA, ND .....	14,746	14,946
HOMME LAKE, ND .....	252	252
INSPECTION OF COMPLETED WORKS, ND .....	452	452
LAKE ASHTABULA AND BALDHILL DAM, ND .....	1,351	1,351
PIPESTEM LAKE, ND .....	496	496
SCHEDULING RESERVOIR OPERATIONS, ND .....	138	138
SOURIS RIVER, ND .....	286	286
SURVEILLANCE OF NORTHERN BOUNDARY WATERS, ND .....	35	35
OHIO		
ALUM CREEK LAKE, OH .....	1,545	1,545
ASHTABULA HARBOR, OH .....	840	1,840
BERLIN LAKE, OH .....	2,198	2,198
CAESAR CREEK LAKE, OH .....	1,500	1,500
CLARENCE J. BROWN DAM, OH .....	1,145	1,145
CLEVELAND HARBOR, OH .....	7,357	8,357
CONNEAUT HARBOR, OH .....	1,191	1,191
DEER CREEK LAKE, OH .....	1,481	1,481
DELAWARE LAKE, OH .....	1,322	1,322
DILLON LAKE, OHIO .....	1,366	1,366
INSPECTION OF COMPLETED WORKS, OH .....	555	555
LORAIN HARBOR, OH .....	880	880
MASSILLON LOCAL PROTECTION PROJECT, OH .....	37	37
MICHAEL J. KIRWAN DAM AND RESERVOIR, OH .....	1,089	1,089
MISSISSIPPI FLOOD CONTROL, OH .....	1,727	1,727
MOSQUITO CREEK LAKE, OH .....	995	995
MUSKINGUM RIVER LAKES, OH .....	7,306	7,306
NORTH BRANCH KOKOSING RIVER LAKE, OH .....	274	274
PAINT CREEK LAKE, OH .....	1,216	1,216
PROJECT CONDITION SURVEYS, OH .....	295	295
ROSEVILLE LOCAL PROTECTION PROJECT, OH .....	35	35
SANDUSKY HARBOR, OH .....	1,465	1,465
SURVEILLANCE OF NORTHERN BOUNDARY WATERS, OH .....	234	234
TOLEDO HARBOR, OH .....	5,034	6,034
TOM JENKINS DAM, OH .....	894	894
WEST FORK OF MILL CREEK LAKE, OH .....	745	745
WILLIAM H. HARSHA LAKE, OH .....	1,029	1,029
OKLAHOMA		
ARCADIA LAKE, OK .....	521	521
BIRCH LAKE, OK .....	902	902
BROKEN BOW LAKE, OK .....	3,202	3,202
CANTON LAKE, OK .....	2,217	2,217
COPAN LAKE, OK .....	1,035	1,035
EUFULA LAKE, OK .....	6,620	6,620
FORT GIBSON LAKE, OK .....	11,768	11,768
FORT SUPPLY LAKE, OK .....	1,104	1,104
GREAT SALT PLAINS LAKE, OK .....	347	347
HEYBURN LAKE, OK .....	748	748
HUGO LAKE, OK .....	1,738	1,738
HULAH LAKE, OK .....	2,097	2,097

## CORPS OF ENGINEERS—OPERATION AND MAINTENANCE—Continued

[In thousands of dollars]

Project title	Budget estimate	Committee recommendation
INSPECTION OF COMPLETED WORKS, OK .....	255	255
KAW LAKE, OK .....	2,751	2,751
KEYSTONE LAKE, OK .....	6,947	6,947
MCCLELLAN-KERR ARKANSAS RIVER NAVIGATION SYSTEM, OK .....	6,173	6,173
OOLOGAH LAKE, OK .....	4,106	4,106
OPTIMA LAKE, OK .....	219	219
PENSACOLA RESERVOIR, LAKE OF THE CHEROKEES, OK .....	114	114
PINE CREEK LAKE, OK .....	1,276	1,276
ROBERT S. KEER LOCK AND DAM AND RESERVOIR, OK .....	8,441	8,441
SARDIS LAKE, OK .....	1,254	1,254
SCHEDULING RESERVOIR OPERATIONS, OK .....	900	900
SKIATOOK LAKE, OK .....	1,414	1,414
TENKILLER FERRY LAKE, OK .....	6,625	6,625
WAURIKA LAKE, OK .....	1,431	1,431
WEBBERS FALLS LOCK & DAM, OK .....	5,903	5,903
WISTER LAKE, OK .....	856	856
OREGON		
APPLEGATE LAKE, OR .....	1,302	1,302
BLUE RIVER LAKE, OR .....	940	940
BONNEVILLE LOCK & DAM, OR & WA .....	13,911	13,911
CHETCO RIVER, OR .....	909	909
COLUMBIA & LOWER WILLAMETTE RIVER BELOW VANCOUVER, WA .....	24,495	24,495
COLUMBIA RIVER AT THE MOUTH, OR & WA .....	12,945	12,945
COLUMBIA RIVER BETWEEN VANCOUVER, WA & THE DALLES, OR. ....	689	689
COOS BAY, OR .....	4,591	5,043
COQUILLE RIVER, OR .....	339	339
COTTAGE GROVE LAKE, OR .....	1,130	1,130
COUGAR LAKE, OR .....	1,582	1,582
DEPOE BAY, OR .....		118
DETROIT LAKE, OR .....	949	949
DORENA LAKE, OR .....	1,160	1,160
FALL CREEK LAKE, OR .....	1,864	1,864
FERN RIDGE LAKE, OR .....	2,362	2,362
GREEN PETER—FOSTER LAKES, OR .....	3,650	3,650
HILLS CREEK LAKE, OR .....	843	843
INSPECTION OF COMPLETED ENVIRONMENTAL PROJECTS, OR .....	34	34
INSPECTION OF COMPLETED WORKS, OR .....	636	636
JOHN DAY LOCK & DAM, OR & WA .....	8,901	8,901
LOOKOUT POINT LAKE, OR .....	2,766	2,766
LOST CREEK LAKE, OR .....	3,636	3,636
MCNARY LOCK & DAM, OR & WA .....	7,137	7,137
PORT ORFORD, OR .....	38	38
PROJECT CONDITION SURVEYS, OR .....	200	200
ROGUE RIVER AT GOLD BEACH, OR .....	565	565
SCHEDULING RESERVOIR OPERATIONS, OR .....	69	69
SIUSLAW RIVER, OR .....	647	647
SKIPANON CHANNEL, OR .....	6	6
SURVEILLANCE OF NORTHERN BOUNDARY WATERS, OR .....	10,400	10,400
TILLAMOOK BAY AND BAR, OR .....	48	48
UMPQUA RIVER, OR .....	1,174	1,174
WILLAMETTE RIVER AT WILLAMETTE FALLS, OR .....	87	918
WILLAMETTE RIVER BANK PROTECTION, OR .....	41	41
WILLOW CREEK LAKE, OR .....	629	629
YAQUINA BAY & HARBOR, OR .....	1,790	1,790
PENNSYLVANIA		
ALLEGHENY RIVER, PA .....	9,039	9,039
ALVIN R. BUSH DAM, PA .....	659	659
AYLESWORTH CREEK LAKE, PA .....	215	215
BELTZVILLE LAKE, PA .....	1,201	1,201

## CORPS OF ENGINEERS—OPERATION AND MAINTENANCE—Continued

[In thousands of dollars]

Project title	Budget estimate	Committee recommendation
BLUE MARSH LAKE, PA .....	2,696	2,696
CONEMAUGH RIVER LAKE, PA .....	1,253	1,253
COWANESQUE LAKE, PA .....	1,889	1,889
CROOKED CREEK LAKE, PA .....	1,683	1,683
CURWENSVILLE LAKE, PA .....	757	757
EAST BRANCH CLARION RIVER LAKE, PA .....	1,524	1,524
ERIE HARBOR, PA .....	555	555
FOSTER JOSEPH SAYERS DAM, PA .....	674	674
FRANCIS E WALTER DAM, PA .....	969	969
GENERAL EDGAR JADWIN DAM AND RESERVOIR, PA .....	224	224
INSPECTION OF COMPLETED WORKS, PA .....	880	880
JOHNSTOWN, PA .....	34	34
KINZUA DAM AND ALLEGHENY RESERVOIR, PA .....	1,338	1,338
LOYALHANNA LAKE, PA .....	1,346	1,346
MAHONING CREEK LAKE, PA .....	1,286	1,286
MONONGAHELA RIVER, PA .....	16,758	16,758
OHIO RIVER LOCKS AND DAMS, PA, OH & WV .....	21,470	21,470
OHIO RIVER OPEN CHANNEL WORK, PA, OH & WV .....	516	516
PROJECT CONDITION SURVEYS, PA .....	120	120
PROMPTON LAKE, PA .....	434	434
PUNKSUTAWNEY, PA .....	22	22
RAYSTOWN LAKE, PA .....	3,847	3,847
SCHEDULING RESERVOIR OPERATIONS, PA .....	59	59
SCHUYLKILL RIVER, PA .....	200	200
SHENANGO RIVER LAKE, PA .....	6,992	6,992
STILLWATER LAKE, PA .....	452	452
SURVEILLANCE OF NORTHERN BOUNDARY WATERS, PA .....	98	98
TIOGA-HAMMOND LAKES, PA .....	2,456	2,456
TIONESTA LAKE, PA .....	1,812	1,812
UNION CITY LAKE, PA .....	440	440
WOODCOCK CREEK LAKE, PA .....	1,041	1,041
YORK INDIAN ROCK DAM, PA .....	478	478
YOUNGHIOGHENY RIVER LAKE, PA & MD .....	2,335	2,335
PUERTO RICO		
SAN JUAN HARBOR, PR .....	1,200	1,200
RHODE ISLAND		
BLOCK ISLAND HARBOR OF REFUGE, RI .....		1,250
FOX POINT HURRICANE BARRIER, RI .....	500	500
GREAT SALT POND, BLOCK ISLAND, RI (NEW HARBOR) .....	100	200
INSPECTION OF COMPLETED WORKS, RI .....	48	48
PAWCATUCK RIVER, LITTLE NARRAGANSETT BAY & WATCH HILL .....		200
POINT JUDITH HARBOR OF REFUGE, RI .....	300	300
PROJECT CONDITION SURVEYS, RI .....	500	500
PROVIDENCE HARBOR SHIPPING CHANNEL, RI .....		300
WOONSOCKET, RI .....	200	200
SOUTH CAROLINA		
ATLANTIC INTRACOASTAL WATERWAY, SC .....	795	1,295
CHARLESTON HARBOR, SC ? .....	12,492	10,694
COOPER RIVER, CHARLESTON HARBOR, SC .....	4,685	4,685
GEORGETOWN HARBOR, SC .....	250	1,250
INSPECTION OF COMPLETED WORKS, SC .....	70	70
PROJECT CONDITION SURVEYS, SC .....	465	465
SOUTH DAKOTA		
BIG BEND DAM, LAKE SHARPE, SD .....	9,873	9,873
CHEYENNE RIVER SIOUX TRIBE, LOWER BRULE SIOUX, SD .....		3,000
COLD BROOK LAKE, SD .....	436	436
COTTONWOOD SPRINGS LAKE, SD .....	271	271



## CORPS OF ENGINEERS—OPERATION AND MAINTENANCE—Continued

[In thousands of dollars]

Project title	Budget estimate	Committee recommendation
FORT RANDALL DAM, LAKE FRANCIS CASE, SD .....	12,210	12,210
INSPECTION OF COMPLETED WORKS, SD .....	75	75
LAKE TRAVERSE, SD & MN .....	598	598
OAHE DAM, LAKE OAHE, SD & ND .....	11,816	11,816
SCHEDULING RESERVOIR OPERATIONS, SD .....	81	81
TENNESSEE		
CENTER HILL LAKE, TN .....	6,143	6,143
CHEATHAM LOCK AND DAM, TN .....	6,454	6,454
CHICKAMAUGA LOCK, TENNESSEE RIVER, TN .....	3,775	3,775
CORDELL HULL DAM AND RESERVOIR, TN .....	6,813	6,813
DALE HOLLOW LAKE, TN .....	6,386	6,386
INSPECTION OF COMPLETED WORKS, TN .....	50	50
J. PERCY PRIEST DAM AND RESERVOIR, TN .....	4,818	4,818
OLD HICKORY LOCK AND DAM, TN .....	12,304	12,304
TENNESSEE RIVER, TN .....	16,833	16,833
WOLF RIVER HARBOR, TN .....	373	373
TEXAS		
AQUILLA LAKE, TX .....	1,564	1,564
ARKANSAS-RED RIVER BASINS CHLORIDE CONTROL-AREA VIII, .....	1,558	1,558
BARDWELL LAKE, TX .....	2,229	2,229
BAYPORT SHIP CHANNEL, TX .....	4,968	4,968
BELTON LAKE, TX .....	3,280	3,280
BENBROOK LAKE, TX .....	2,575	2,575
BRAZOS ISLAND HARBOR, TX .....	3,388	3,388
BUFFALO BAYOU & TRIBUTARIES, TX .....	2,958	2,958
CANYON LAKE, TX .....	4,005	4,005
CEDAR BAYOU, TX .....	1,790	1,790
CHANNEL TO HARLINGEN, TX .....	2,161	2,161
CHANNEL TO PORT BOLIVAR, TX .....	383	383
CORPUS CHRISTI SHIP CHANNEL, TX .....	4,523	4,523
DENISON DAM, LAKE TEXOMA, TX & OK .....	7,676	7,676
ESTELLINE SPRINGS EXPERIMENTAL PROJECT, TX .....	43	43
FERRELLS BRIDGE DAM, LAKE O' THE PINES, TX .....	3,485	3,485
FREEPORT HARBOR, TX .....	3,316	3,316
GALVESTON HARBOR AND CHANNEL, TX .....	13,095	13,095
GIWW, CHANNEL TO VICTORIA, TX .....	2,264	2,264
GIWW, CHOCOLATE BAYOU, TX .....	1,733	1,733
GRANGER DAM AND LAKE, TX .....	2,588	2,588
GRAPEVINE LAKE, TX .....	2,735	2,735
GULF INTRACOASTAL WATERWAY, TX .....	26,046	26,046
HORDS CREEK LAKE, TX .....	1,605	1,605
HOUSTON SHIP CHANNEL, TX .....	15,063	15,063
INSPECTION OF COMPLETED WORKS, TX .....	1,520	1,520
JIM CHAPMAN LAKE, TX .....	1,718	1,718
JOE POOL LAKE, TX .....	1,096	1,096
LAKE KEMP, TX .....	327	327
LAVON LAKE, TX .....	3,497	3,497
LEWISVILLE DAM, TX .....	3,549	3,549
MATAGORDA SHIP CHANNEL, TX .....	4,627	4,627
NAVARRO MILLS LAKE, TX .....	4,168	4,168
NORTH SAN GABRIEL DAM AND LAKE GEORGETOWN, TX .....	2,382	2,382
O C FISHER DAM AND LAKE, TX .....	1,164	1,164
PAT MAYSE LAKE, TX .....	1,208	1,208
PROCTOR LAKE, TX .....	2,324	2,324
PROJECT CONDITION SURVEYS, TX .....	223	223
RAY ROBERTS LAKE, TX .....	1,324	1,324
SABINE-NECHES WATERWAY, TX .....	13,399	13,399
SAM RAYBURN DAM AND RESERVOIR, TX .....	6,247	6,247
SCHEDULING RESERVOIR OPERATIONS, TX .....	149	149

## CORPS OF ENGINEERS—OPERATION AND MAINTENANCE—Continued

[In thousands of dollars]

Project title	Budget estimate	Committee recommendation
SOMERVILLE LAKE, TX .....	3,366	3,366
STILLHOUSE HOLLOW DAM, TX .....	2,096	2,096
TEXAS CITY SHIP CHANNEL, TX .....	4,000	4,000
TEXAS WATER ALLOCATION ASSESSMENT, TX .....	100	1,000
TOWN BLUFF DAM, B A STEINHAGEN LAKE, TX .....	2,505	2,505
WACO LAKE, TX .....	3,711	3,711
WALLISVILLE LAKE, TX .....	2,114	2,114
WHITNEY LAKE, TX .....	8,348	8,348
WRIGHT PATMAN DAM AND LAKE, TX .....	3,517	3,517
UTAH		
INSPECTION OF COMPLETED WORKS, UT .....	84	84
SCHEDULING RESERVOIR OPERATIONS, UT .....	594	594
VERMONT		
BALL MOUNTAIN, VT .....	858	858
INSPECTION OF COMPLETED WORKS, VT .....	109	109
NARROWS OF LAKE CHAMPLAIN, VT & NY .....	85	85
NORTH HARTLAND LAKE, VT .....	772	772
NORTH SPRINGFIELD LAKE, VT .....	854	854
TOWNSHEND LAKE, VT .....	814	814
UNION VILLAGE DAM, VT .....	627	627
VIRGINIA		
APPOMATTOX RIVER, VA .....		500
ATLANTIC INTRACOASTAL WATERWAY—ACC, VA .....	2,620	2,620
ATLANTIC INTRACOASTAL WATERWAY—DSC, VA .....	991	1,311
CHINCOTEAGUE INLET, VA .....	913	913
GATHRIGHT DAM AND LAKE MOOMAW, VA .....	2,323	2,323
HAMPTON RDS, NORFOLK AND NEWPORT NEWS HARBOR, VA (DRIF .....	882	882
INSPECTION OF COMPLETED WORKS, VA .....	369	369
JAMES RIVER CHANNEL, VA .....	4,479	4,479
JOHN H. KERR LAKE, VA & NC .....	11,585	11,585
JOHN W. FLANNAGAN DAM AND RESERVOIR, VA .....	2,104	2,104
LYNNHAVEN INLET, VA .....	277	277
NORFOLK HARBOR, VA .....	11,343	11,343
NORTH FORK OF POUND RIVER LAKE, VA .....	630	630
PHILPOTT LAKE, VA & NC .....	5,638	5,638
PROJECT CONDITION SURVEYS, VA .....	850	850
REMOVAL OF AQUATIC GROWTH, VA .....	50	50
RUDEE INLET, VA .....	795	795
WATER/ENVIRONMENTAL CERTIFICATION, VA .....	104	104
WATERWAY ON THE COAST OF VIRGINIA, VA .....	201	201
WASHINGTON		
CHIEF JOSEPH DAM, WA .....	790	790
COLUMBIA RIVER AT BAKER BAY, WA & OR .....	86	727
COLUMBIA RIVER BETWEEN CHINOOK AND SAND ISLAND, WA .....	7	847
EDIZ HOOK, WA .....	730	730
EVERETT HARBOR AND SNOHOMISH RIVER, WA .....	1,766	1,766
FRIDAY HARBOR, WA .....	111	111
GRAYS HARBOR AND CHEHALIS RIVER, WA .....	11,140	11,140
HOWARD HANSON DAM, WA .....	3,694	3,694
ICE HARBOR LOCK & DAM, WA .....	5,828	5,828
INSPECTION OF COMPLETED ENVIRONMENTAL PROJECTS, WA .....	74	74
INSPECTION OF COMPLETED WORKS, WA .....	725	725
LAKE WASHINGTON SHIP CANAL, WA .....	9,246	9,246
LITTLE GOOSE LOCK & DAM, WA .....	2,551	2,551
LOWER GRANITE LOCK & DAM, WA .....	7,651	7,651
LOWER MONUMENTAL LOCK & DAM, WA .....	2,735	6,735
MILL CREEK LAKE, WA .....	3,834	3,834

## CORPS OF ENGINEERS—OPERATION AND MAINTENANCE—Continued

[In thousands of dollars]

Project title	Budget estimate	Committee recommendation
MT. ST. HELENS SEDIMENT CONTROL, WA .....	279	279
MUD MOUNTAIN DAM, WA .....	3,056	3,056
NEAH BAY, WA .....	67	67
PROJECT CONDITION SURVEYS, WA .....	524	524
PUGET SOUND AND TRIBUTARY WATERS, WA .....	1,011	1,011
QUILLAYUTE RIVER, WA .....	266	266
SCHEDULING RESERVOIR OPERATIONS, WA .....	537	537
SEATTLE HARBOR, WA .....	172	172
STILLAGUAMISH RIVER, WA .....	165	165
SURVEILLANCE OF NORTHERN BOUNDARY WATERS, WA .....	50	50
TACOMA, PUYALLUP RIVER, WA .....	130	130
THE DALLES LOCK & DAM, WA & OR .....	8,769	8,769
WILLAPA RIVER AND HARBOR, WA .....	40	40
WEST VIRGINIA		
BEECH FORK LAKE, WV .....	1,405	1,405
BLUESTONE LAKE, WV .....	1,661	1,661
BURNSVILLE LAKE, WV .....	2,246	2,246
EAST LYNN LAKE, WV .....	2,167	2,167
ELKINS, WV .....	15	15
INSPECTION OF COMPLETED WORKS, WV .....	336	336
KANAWHA RIVER LOCKS & DAM, WV .....	14,089	14,089
OHIO RIVER LOCKS AND DAMS, WV, KY & OH .....	35,276	35,276
OHIO RIVER OPEN CHANNEL WORK, WV, KY & OH .....	2,996	2,996
R D BAILEY LAKE, WV .....	1,927	1,927
STONEWALL JACKSON LAKE, WV .....	1,148	1,148
SUMMERSVILLE LAKE, WV .....	3,234	3,234
SUTTON LAKE, WV .....	2,413	2,413
TYGART LAKE, WV .....	1,478	1,478
WISCONSIN		
EAU GALLE RIVER LAKE, WI .....	888	888
FOX RIVER, WI .....	2,421	4,421
GREEN BAY HARBOR, WI .....	3,459	6,459
INSPECTION OF COMPLETED WORKS, WI .....	91	91
KEWAUNEE HARBOR, WI .....	40	40
PROJECT CONDITION SURVEYS, WI .....	283	283
STURGEON BAY HARBOR AND LAKE MICHIGAN SHIP CANAL, WI .....	20	20
SURVEILLANCE OF NORTHERN BOUNDARY WATERS, WI .....	388	388
WYOMING		
INSPECTION OF COMPLETED ENVIRONMENTAL PROJECTS, WV .....	10	10
INSPECTION OF COMPLETED WORKS, WY .....	25	25
JACKSON HOLE LEVEES, WY .....	877	877
SCHEDULING RESERVOIR OPERATIONS, WY .....	118	118
SUBTOTAL, PROJECTS LISTED BY STATE .....	2,317,027	2,366,322
REMAINING ITEMS:		
ACTIONS FOR CHANGE TO IMPROVE OPERATION AND MAINTENANCE .....	8,000	5,000
AQUATIC NUISANCE CONTROL RESEARCH .....	690	690
ASSET MANAGEMENT/FACILITIES AND EQUIPMENT MAINTENANCE .....	4,750	4,750
BUDGET/MANAGEMENT SUPPORT FOR O&M BUSINESS LINES .....	6,792	6,792
COASTAL INLET RESEARCH PROGRAM .....	3,000	3,000
CONTINUING AUTHORITIES PROJECTS NOT REQUIRING SPECIFIC .....		
BENEFICIAL USES OF DREDGED MATERIAL (SECTION 204/145) .....	9,175	
NATIONAL MITIGATION PROJECTS (SECTION 111) .....		9,043
RESPONSE TO CLIMATE CHANGE AT CORPS PROJECTS .....	5,000	2,500
CULTURAL RESOURCES (NAGPRA/CURATION) .....	2,500	2,500
DREDGE MCFARLAND READY RESERVE .....	12,000	12,000
DREDGE WHEELER READY RESERVE .....	12,000	12,000
DREDGING DATA AND LOCK PERFORMANCE MONITORING SYSTEM .....	1,150	1,150

## CORPS OF ENGINEERS—OPERATION AND MAINTENANCE—Continued

[In thousands of dollars]

Project title	Budget estimate	Committee recommendation
DREDGING OPERATIONS AND ENVIRONMENTAL RESTORATION (DOE .....	7,000	7,000
DREDGING OPERATIONS TECHNICAL SUPPORT PROGRAM [DOTS] .....	2,000	2,000
EARTHQUAKE HAZARDS REDUCTION PROGRAM .....	270	270
FACILITY PROTECTION .....	7,000	7,000
FERC HYDROPOWER COORDINATION .....	3,000	3,000
FISH AND WILDLIFE OPERATING FISH HATCHERY REIMBURSEMENT .....	4,700	4,700
GREAT LAKES SEDIMENT TRANSPORT MODEL .....	1,200	1,200
INLAND WATERWAY NAVIGATION CHARTS .....	3,800	3,800
INSPECTION OF COMPLETED WORKS .....	1,780	1,780
LONG-TERM OPTION ASSESSMENT FOR LOW USE NAVIGATION .....	1,500	1,500
MONITORING OF COMPLETED NAVIGATION PROJECTS .....	1,800	1,800
NATIONAL COASTAL MAPPING PROGRAM .....	7,000	12,000
NATIONAL DAM SAFETY PROGRAM .....	18,000	18,000
NATIONAL EMERGENCY PREPAREDNESS PROGRAM [NEPP] .....	7,000	7,000
NATIONAL (LEVEE) FLOOD INVENTORY .....	10,000	10,000
NATIONAL (MULTI PROJECT) NATURAL RESOURCES MANAGEMENT .....	4,230	4,230
NATIONAL PORTFOLIO ASSESSMENT FOR REALLOCATION .....	571	571
NATIONWIDE EVALUATION OF HYDROPOWER REHAB .....	2,000	2,000
PROGRAM DEVELOPMENT TECHNICAL SUPPORT [ABS-P2,WINABS] .....	300	300
PROTECTION OF NAVIGATION:		
REMOVAL OF SUNKEN VESSELS .....	500	500
PROTECT, CLEAR AND STRAIGHTEN CHANNELS (SEC 3) .....	50	50
WATERBORNE COMMERCE STATISTICS .....	4,771	4,771
HARBOR MAINTENANCE FEE DATA COLLECTION .....	825	825
RECREATION ONE STOP [RIS] NATIONAL RECREATION RESERVAT .....	65	65
REGIONAL SEDIMENT MANAGEMENT DEMONSTRATION PROGRAM .....	2,000	5,000
HAWAII RSM, HI .....		(500)
SOUTHEAST OAHU REGIONAL SEDIMENT MANAGEMENT, HI .....		(500)
NORTH CAROLINA RSM, NJ .....		(600)
DELAWARE ESTUARY RSM, NJ .....		(200)
SOUTH COASTAL RHODE ISLAND REGIONAL SEDIMENT MANAGEMENT .....		(750)
CHESAPEAKE BAY, NEWPOINT COMFORT, MATHEWS COUNTY, .....		(350)
RELIABILITY MODELS PROGRAM FOR MAJOR REHAB .....	608	608
RESERVE FOR KEY EMERGENCY MAINTENANCE/REPAIRS .....	20,000	
SHORELINE USE PERMIT STUDY .....	250	250
WATER OPERATIONS TECHNICAL SUPPORT [WOTS] .....	653	653
SUBTOTAL, FOR ITEMS NOT LISTED UNDER STATES .....	186,973	151,255
REDUCTION FOR SAVINGS AND SLIPPAGE .....		— 67,577
TOTAL, OPERATION AND MAINTENANCE .....	2,504,000	2,450,000

*Kodiak Harbor, Alaska.*—The Committee recommendation includes \$240,000 to secure environmental clearances and prepare contract documents for St. Herman's Harbor and St. Paul Harbor.

*Petersberg Harbor, Alaska.*—\$500,000 is recommended to obtain environmental clearances and prepare contract plans and specifications.

*Arkansas Lakes, Arkansas.*—The Committee recommendation includes an increase of \$500,000 each for DeGray Lake, Lake Greeson and Lake Ouachita, to provide adequate levels of service and for backlog maintenance items.

*Osceola Harbor, Arkansas.*—The Committee recommends \$800,000 for maintenance dredging of this harbor.

*Marina Del Rey, California.*—The Committee recommends \$3,000,000 for dredging this project, the largest man-made harbor in the United States with nearly 6,000 boat slips and home to a U.S. Coast Guard Cutter.

*Norwalk Harbor, CT.*—The Committee recommends \$1,000,000 for the Phase III maintenance dredging of the harbor.

*Delaware Bay Coastline, Roosevelt Inlet to Lewes Beach, Delaware.*—The Committee has included funding for this project in the construction account.

*Harbor of Refuge, Lewes, Delaware.*—The Committee recommends \$200,000 to update existing preliminary design and condition survey.

*Wilmington Harbor, Delaware.*—The Committee recommendation includes \$2,320,000 for this project. Additional funds recommended above the budget request are for maintenance of disposal areas and additional dredging.

*Intracoastal Waterway, Caloosahatchee to Anclote, Florida.*—The Committee recommends \$2,000,000 for maintenance dredging.

*Jacksonville Harbor, Florida.*—The Committee recommendation includes \$6,035,000 for routine maintenance and \$1,000,000 is included in the CG account for Dredged Material Disposal Facilities [DMDF].

*Atlantic Intracoastal Waterway, Georgia.*—\$1,000,000 is recommended for dredging critical areas of this waterway as well as for work related to new upland disposal sites.

*Savannah Harbor, Georgia.*—The Committee recommendation for Savannah Harbor includes \$14,187,000 for routine maintenance and \$900,000 is included in the CG account for Dredged material Disposal Facilities [DMDF].

*Chicago Harbor, Illinois.*—The Committee is aware of the city of Chicago's interest in modifying the existing Chicago Lakefront Inner Breakwater consistent with the city of Chicago's 2016 Olympic Master Plan for Chicago Harbor. The Committee encourages the Chicago District of the Army Corps of Engineers to continue to work with the city of Chicago on the city's proposal.

*Illinois River Waterway, Illinois and Indiana (MVR Portion).*—The Committee has recommended \$900,000 above the budget request for small boat harbor dredging in western Illinois.

*Calumet Harbor and River, Illinois.*—The Committee recommendation includes \$3,120,000 for routine maintenance and \$1,501,000 is included in the CG account for DMDF.

*Indiana Harbor Confined Disposal Facility, Indiana.*—Funds for this project have been included in the CG account.

*Calcasieu River and Pass, Louisiana.*—The Committee has included additional funds for dredging needs on this project.

*J. Bennett Johnston Waterway, Louisiana.*—The Committee has included additional funds above the budget request for backlog maintenance and dredging needs.

*Assateague, Maryland.*—The Committee has included funding for this project in the construction account.

*Poplar Island, Maryland.*—The Committee has included funding for this project in the construction account.

*Somerset County Channels, Maryland.*—The Committee recommendation includes \$1,000,000 for additional dredging needs at these harbors that service watermen and the Maryland seafood industry.

*Michigan Harbor Dredging, Michigan.*—The Committee notes that there are some 50 Federally maintained harbors and water-

ways in Michigan. However, the Committee also notes that fewer than 20 are budgeted. With the limited funding available to the Committee, the Committee has recommended \$7,000,000 under this line item to provide for some of the dredging needs of the State rather than trying to fund small amounts for each project. The Committee has listed all of the harbors and waterways in the table that are eligible for this funding. However, recognizing that conditions on these small waterways is constantly changing and the Great Lakes are suffering from near historic low water levels, the Committee is directing the Corps to propose a dredging program for fiscal year 2010 that would most effectively utilize the scarce funds available for these harbor and waterway projects.

*Mouth of the Yazoo River, Mississippi.*—The Committee includes additional funds for the maintenance dredging of the entrance to the Vicksburg Harbor.

*Pascagoula Harbor, Mississippi.*—The Committee has recommended \$10,900,000 for this project. Additional funds above the budget request are recommended to perform additional dredging and maintenance of the entrance and main channels.

*Rosedale Harbor, Mississippi.*—The Committee recommendation includes \$600,000 for maintenance dredging of the harbor.

*Absecon Inlet, New Jersey.*—The Committee recommends \$250,000 for dredging of the inlet.

*Cape May Inlet to Lower Township, New Jersey.*—The Committee has included funding for this project in the construction account.

*Lower Cape May Meadows, Cape May Point, New Jersey.*—The Committee has included funding for this project in the construction account.

*Ogdensburg Harbor, New York.*—The Committee recommends \$70,000 to provide for Sediment Sampling and Analysis in order to perform a tiered evaluation and characterize the channel material for dredging and establish appropriate disposal methods for the dredged material.

*Oswego Harbor, New York.*—The Committee recommends \$300,000 to perform Engineering and Design for the East and West Arrowhead Breakwater Repair.

*Coastal Inlets, North Carolina.*—The Committee has included additional funds for the coastal inlets on the North Carolina coast that were not funded in the administration's budget request. With the limited funding available to the Committee, the Committee has attempted to provide for some of the dredging needs of the State. However, recognizing that conditions on these inlets are constantly changing the Committee is directing the Corps to propose a dredging program for fiscal year 2010 that would most effectively utilize the scarce funds available for these inlets.

*Garrison Dam and Lake Sakakawea, North Dakota.*—The Committee recommends \$100,000 for mosquito control in the Williston area due to the shallow-water mosquito breeding areas created by the impoundment of Lake Sakakawea.

*Ohio Great Lakes Harbor.*—The Committee has included additional funds for a number of the Great Lakes Harbors in Ohio that were underfunded in the administration's budget request. With the limited funding available to the Committee, the Committee has attempted to provide for some of the dredging need of the State.

However, recognizing that conditions on these inlets are constantly changing the Committee is directing the Corps to propose a dredging program for fiscal year 2010 that would most effectively utilize the scarce funds available for these harbors.

*Willamette River at Willamette Falls, Oregon.*—The Committee recommends \$918,000 for this project. Funds above the budget request are for minimal seasonal lock operation for commercial and recreational users and to prepare a design report for comprehensive rehab of lock facility.

*Block Island, Harbor of Refuge, Rhode Island.*—The Committee has recommended \$1,250,000 to advertise and award a fully funded contract to repair the east bulkhead.

*Charleston Harbor, South Carolina.*—The Committee recommendation includes \$10,694,000 for routine maintenance and \$1,798,000 is included in the CG account for DMDF.

*Cheyenne River Sioux Tribe, Lower Brule Sioux, South Dakota.*—The Committee notes that title VI of the Water Resources Development Act of 1999, as amended, requires that funding to inventory and stabilize cultural and historic sites along the Missouri River in South Dakota, and to carry out the terrestrial wildlife habitat programs, shall be provided from the O&M account. The Committee provides \$3,000,000 to protect cultural resource sites and provide funding to the State and tribes for approved restoration and stewardship plans and in compliance with the requirements of title VI, directs the Corps to contract with or reimburse the State of South Dakota and affected tribes to carry out these duties.

*Texas Water Allocation Assessment, Texas.*—\$1,000 is recommended to continue these studies to determine if existing water can be better allocated to support more balanced water use in light of future needs.

*Appomattox River, VA.*—The committee recommends \$500,000 to complete environmental testing and analysis and obtain environmental permits.

*Chinook, Head of Sand Island, and Baker Bay, Washington.*—The Committee notes the proximity of Corps navigation facilities on the Columbia River between Chinook and the Head of Sand Island, Washington, and at Baker Bay, Washington, and encourage the Corps of Engineers to seek ways to achieve cost savings and efficiency, such as by utilizing appropriate contracting methods while having these two projects be considered together when seeking bids and awarding contracts. \$1,574,000 is recommended for dredging at these harbors.

*Mud Mountain Dam, Washington.*—Within the funds recommended, the Corps is directed to continue to satisfy Federal fish passage obligations for the term of the cooperative agreement with Puget Sound Energy.

*Fox River, Wisconsin.*—Additional funds recommended above the budget request are to reimburse Wisconsin, in accordance with the agreement, for the costs of repairs and rehabilitation of the transferred locks and for the Corps of Engineers to undertake major repairs for the dams and associated infrastructure.

*Green Bay Harbor, Wisconsin.*—The Committee recommendation includes \$3,000,000 above the budget request for backlog maintenance and dredging needs.

*Continuing Authorities Projects for Section 111 and Section 204.*—These sections of the CAP are funded in the CG account with the other parts of the CAP.

*Response to Climate Change at Corps Projects.*—A portion of these funds were moved to the Coastal Data Information Program in order to ensure that the period of record for coastal wave information is maintained.

*National Coastal Mapping.*—\$12,000,000 is recommended for this program. Additional funds recommended above the budget request are for LIDAR bathymetry for use in regional sediment management and for Coastal Zone Mapping and Imaging LIDAR/LASER to be conducted with the University of Southern Mississippi.

*Regional Sediment Management Demonstration Program.*—The Committee has recommended \$5,000,000 for this program, \$3,000,000 above the budget request. Within the funds recommended, the Corps is directed to undertake studies for the State of Hawaii; the Southeast Coast of Oahu, Hawaii; the State of North Carolina; South Coastal Rhode Island; Delaware Estuary, New Jersey; and for Chesapeake Bay, New Point Comfort, Mathews County, Virginia.

*Reserve for Key Emergency Maintenance/Repairs.*—The Committee has recommended no funding for this item. The Committee believes it is critical for Corps Headquarters to retain a maintenance reserve. Therefore, a proviso in the operation and maintenance section of the bill is included to address this need.

#### FLOOD CONTROL AND COASTAL EMERGENCIES

Appropriations, 2009 .....	( <sup>1</sup> )
Budget estimate, 2010 .....	41,000
Committee recommendation .....	

<sup>1</sup> Excludes emergency appropriations of \$3,680,290,000.

The Committee has recommended no funding for the Flood Control and Coastal Emergencies account. Readiness and preparedness activities have been funded through supplemental appropriations acts. This account provides funds for preparedness activities for natural and other disasters, response, and emergency flood fighting and rescue operations, hurricane response, and emergency shore protection work. It also provides for emergency supplies of clean water where the source has been contaminated or where adequate supplies of water are needed for consumption.

#### REGULATORY PROGRAM

Appropriations, 2009 .....	<sup>1</sup> \$183,000,000
Budget estimate, 2010 .....	190,000,000
Committee recommendation .....	190,000,000

<sup>1</sup> Excludes emergency appropriations of \$25,000,000.

An appropriation of \$190,000,000 is recommended for the regulatory program of the Corps of Engineers.

This appropriation provides for salaries and costs incurred administering regulation of activities affecting U.S. waters, including wetlands, in accordance with the Rivers and Harbors Act of 1899 33 U.S.C. section 401, the Clean Water Act of 1977 Public Law 95–



217, and the Marine Protection, Research and Sanctuaries Act of 1972 Public Law 92-532.

The appropriation helps maintain program performance, protects important aquatic resources, and supports partnerships with States and local communities through watershed planning efforts.

#### FORMERLY UTILIZED SITES REMEDIAL ACTION PROGRAM

Appropriations, 2009 .....	<sup>1</sup> \$140,000,000
Budget estimate, 2010 .....	134,000,000
Committee recommendation .....	140,000,000

<sup>1</sup> Excludes emergency appropriations of \$100,000,000.

The Committee recommends an appropriation of \$140,000,000 to continue activities related to the FUSRAP in fiscal year 2005.

The responsibility for the cleanup of contaminated sites under the Formerly Utilized Sites Remedial Action Program was transferred to the Army Corps of Engineers in the fiscal year 1998 Energy and Water Development Appropriations Act, Public Law 105-62.

FUSRAP is not specifically defined by statute. The program was established in 1974 under the broad authority of the Atomic Energy Act and, until fiscal year 1998, funds for the cleanup of contaminated defense sites had been appropriated to the Department of Energy through existing appropriation accounts. In appropriating FUSRAP funds to the Corps of Engineers, the Committee intended to transfer only the responsibility for administration and execution of cleanup activities at eligible sites where remediation had not been completed. It did not intend to transfer ownership of and accountability for real property interests that remain with the Department of Energy.

The Corps of Engineers has extensive experience in the cleanup of hazardous, toxic, and radioactive wastes through its work for the Department of Defense and other Federal agencies. The Committee always intended for the Corps' expertise be used in the same manner for the cleanup of contaminated sites under FUSRAP. The Committee expects the Corps to continue programming and budgeting for FUSRAP as part of the Corps of Engineers—Civil program. The Committee directs the Corps to prioritize sites that are nearing completion during fiscal year 2008.

The Corps is directed to prioritize sites that are nearing completion. The Committee directs the Corps of Engineers during fiscal year 2010 to complete the Remedial Investigation/Feasibility Study of the former Sylvania nuclear fuel site at Hicksville, New York and to proceed expeditiously to a Record of Decision and, if appropriate, initiate any necessary remediation in accordance with CERCLA. The Secretary of the Army shall submit a report to the Committees on Appropriations of the House of Representatives and the Senate detailing the progress not later than 120 days after enactment of this act.

#### GENERAL EXPENSES

Appropriations, 2009 .....	\$179,365,000
Budget estimate, 2010 .....	184,000,000
Committee recommendation .....	186,000,000

This appropriation finances the expenses of the Office, Chief of Engineers, the Division Offices, and certain research and statistical functions of the Corps of Engineers. The Committee recommendation is \$186,000,000.

*Executive Direction and Management.*—The Office of the Chief of Engineers and 8 division offices supervise work in 38 district offices.

*Humphreys Engineer Center Support Activity.*—This support center provides administrative services (such as personnel, logistics, information management, and finance and accounting) for the Office of the Chief of Engineers and other separate field operating activities.

*Institute for Water Resources.*—This institute performs studies, analyses, and develops planning techniques for the management and development of the Nation's water resources.

*United States Army Corps of Engineers Finance Center.*—This center provides centralized support for all Corps finance and accounting.

*Office of Congressional Affairs.*—The Committee has included statutory language for the past several years prohibiting any funds from being used to fund an Office of Congressional Affairs within the executive office of the Chief of Engineers. The Committee believes that an Office of Congressional Affairs for the Civil Works Program would hamper the efficient and effective coordination of issues with the Committee staff and Members of Congress. The Committee believes that the technical knowledge and managerial expertise needed for the Corps headquarters to effectively address Civil Works authorization, appropriation, and headquarters policy matters resides in the Civil Works organization. Therefore, the Committee strongly recommends that the Office of Congressional Affairs not be a part of the process by which information on Civil Works projects, programs, and activities is provided to Congress.

In 1998, The Chief of Engineers issued a Command Directive transferring the oversight and management of the General Expenses account, as well as the manpower associated with this function, from the Civil Works Directorate to the Resource Management Office. The Corps is reminded that General Expense funds are appropriated solely for the executive management and oversight of the Civil Works Program under the direction of the Director of Civil Works.

#### OFFICE OF THE ASSISTANT SECRETARY OF THE ARMY (CIVIL WORKS)

Appropriations, 2009 .....	\$4,500,000
Budget estimate, 2010 .....	6,000,000
Committee recommendation .....	5,000,000

The Committee has recommended \$5,000,000 for the Office of the Assistant Secretary of the Army (Civil Works) [OASA(CW)]. As has been previously stated, the Committee believes that this office should be funded through the Defense appropriations bill and directs the administration to budget for this office under the Department of Defense, Operation and Maintenance—Army account in future budget submissions. It is the Committee's opinion that the traditional role of the ASA(CW) is to provide the Chief of Engineers advice about policy matters and generally be the political spokes-

person for the administration's policies; however, the Chief of Engineers is responsible for carrying out the program. This is underscored by the administration's budget documents that state that the OASA(CW) provides policy direction and oversight for the civil works program and the Headquarters of the Corps provides executive direction and management of the civil works program.

The Assistant Secretary of the Army for Civil Works advises the Secretary of the Army on a variety of matters, including the Civil Works program of the Corps of Engineers. The Assistant Secretary is a member of the Army Secretariat with responsibilities, such as participating in Continuity of Government exercises that extend well beyond Civil Works. The Assistant Secretary also oversees the administration, operation and maintenance, and capital development of Arlington National Cemetery and the Soldiers' and Airmen's Home National Cemetery. Congressional oversight of the Army Cemetery program lies not with the Energy and Water Appropriations Subcommittee, but rather with the Appropriations Subcommittee on Military Construction and Veterans Affairs and with the Committee on Veterans Affairs.

The Army's accounting system does not track OMA funding of overhead or Army-wide support offices on the basis of which office receives support, nor would it be efficient or effective to do so for a 20-person office. Instead, expenses such as legal support, personnel services, finance and accounting services, the executive motor pool, travel on military aircraft, and other support services are centrally funded and managed on a department-wide basis. Transferring the funding for the expenses of the Assistant Secretary for Civil Works to a separate account has greatly complicated the Army's accounting for such indirect and overhead expenses with no commensurate benefit to justify the change. The Committee does not agree that these costs should be funded in this bill and therefore has only provided funding for salaries and expenses as in previous years.

#### GENERAL PROVISIONS—CORPS OF ENGINEERS—CIVIL

Section 101. The bill includes language concerning reprogramming guidelines.

Section 102. The bill includes language prohibiting implementation of competitive sourcing or HPO.

Section 103. The bill includes language concerning report notifications.

Section 104. The bill includes language concerning reallocations in Lake Cumberland, Kentucky.

Section 105. The bill includes language concerning continuing contracts and the Inland Waterway Trust Fund.

Section 106. The bill contains language concerning a project cost limit change.

Section 107. The bill contains language concerning a project cost limit change.

Section 108. The bill contains language concerning a project cost limit change.

Section 109. The bill contains language concerning a project cost limit change.

Section 110 The bill contains language concerning a project cost limit change.

Section 111. The bill contains language concerning a reimbursement limit change.

Section 112. The bill contains language regarding Alaska coastal erosion.

Section 113. The bill contains language making a correction to a provision in WRDA 2007.

Section 114. The bill contains language concerning a project cost limit change.

Section 115. The bill contains language concerning a rescission of MR&T funds.

Section 116. The bill contains language concerning a rescission of CG funds.

## TITLE II

### DEPARTMENT OF THE INTERIOR

#### CENTRAL UTAH PROJECT COMPLETION ACCOUNT

Appropriations, 2009 .....	\$42,000,000
Budget estimate, 2010 .....	42,004,000
Committee recommendation .....	42,004,000

The Committee recommendation for fiscal year 2010 to carry out the provisions of the Central Utah Project Completion Act totals \$42,004,000. An appropriation of \$38,800,000 has been provided for Central Utah project construction; \$1,500,000 for fish, wildlife, and recreation, mitigation and conservation. The Committee recommendation provides \$1,704,000 for program administration and oversight.

Legislative language is included which allows up to \$1,500,000 of the funds provided to be used for administrative costs.

The Central Utah Project Completion Act (titles II–VI of Public Law 102–575) provides for the completion of the central Utah project by the Central Utah Water Conservancy District. The Act also authorizes the appropriation of funds for fish, wildlife, recreation, mitigation, and conservation; establishes an account in the Treasury for the deposit of these funds and of other contributions for mitigation and conservation activities; and establishes a Utah Reclamation Mitigation and Conservation Commission to administer funds in that account. The act further assigns responsibilities for carrying out the act to the Secretary of the Interior and prohibits delegation of those responsibilities to the Bureau of Reclamation.

#### BUREAU OF RECLAMATION

##### WATER AND RELATED RESOURCES

Appropriations, 2009 .....	<sup>1</sup> \$920,259,000
Budget estimate, 2010 .....	893,125,000
Committee recommendation .....	993,125,000

<sup>1</sup> Excludes emergency appropriations of \$1,000,000,000.

An appropriation of \$993,125,000 is recommended by the Committee for general investigations of the Bureau of Reclamation. The water and related resources account supports the development, management, and restoration of water and related natural resources in the 17 Western States. The account includes funds for operating and maintaining existing facilities to obtain the greatest overall level of benefits, to protect public safety, and to conduct studies on ways to improve the use of water and related natural resources. Work will be done in partnership and cooperation with non-Federal entities and other Federal agencies.

The Committee has divided underfinancing between the Resources Management Subaccount and the Facilities Operation and Maintenance subaccount. The Committee directs that the underfinancing amount in each subaccount initially be applied uniformly across all projects within the subaccounts. Upon applying the underfinanced amounts, normal reprogramming procedures should be undertaken to account for schedule slippages, accelerations, or other unforeseen conditions.

#### DISCLOSURE PROVISIONS

The Committee received more than 140 requests for projects, programs, studies or activities for the Bureau of Reclamation for fiscal year 2010. These requests included the budget request as well as requests by Members. The Committee obviously was unable to accommodate all of these requests.

In the interest of providing full disclosure of funding provided in the Energy and Water bill, all disclosures are made in the report accompanying the bill.

All of the projects funded in this report have gone through the same rigorous public review and approval process as those proposed for funding by the President. The difference in these projects, of course, is that the congressionally directed projects are not subject to the artificial budgetary prioritization criteria that the administration utilizes to decide what not to fund.

There are two disclosure tables this year. One discloses the recommended amounts that are in excess of those proposed in the budget request and the Members names that made these requests. If the Member requested the budget request or if only the budget request was provided, Member names are not listed next to these items because under the provisions of Rule 44 this would not be considered congressionally directed spending. The second table discloses only those earmarks requested by the President and the amounts recommended or the budget request whichever is appropriated.

The purposes for the funding provided in the various accounts is described in the paragraphs associated with each account. The location of the programs, projects or studies are denoted in the account tables.

The amounts recommended by the Committee are shown on the following table along with the budget request.

#### BUREAU OF RECLAMATION—WATER AND RELATED RESOURCES

[In thousands of dollars]

Project title	Budget estimate		Committee recommendation	
	Resources management	Facilities OM&R	Resources management	Facilities OM&R
ARIZONA				
AK CHIN WATER RIGHTS SETTLEMENT ACT PROJECT .....		10,600		10,600
ARIZONA WATER RIGHTS SETTLEMENT ACT .....	1,400		1,400	
COLORADO RIVER BASIN, CENTRAL ARIZONA PROJECT .....	18,103	305	18,103	305
COLORADO RIVER FRONT WORK AND LEVEE SYSTEM .....	2,350		2,350	
NORTHERN ARIZONA INVESTIGATIONS PROGRAM .....	350		350	
PHOENIX METROPOLITAN WATER REUSE PROJECT .....	200		200	
SALT RIVER PROJECT .....	517	133	517	133

## BUREAU OF RECLAMATION—WATER AND RELATED RESOURCES—Continued

[In thousands of dollars]

Project title	Budget estimate		Committee recommendation	
	Resources management	Facilities OM&R	Resources management	Facilities OM&R
SAN CARLOS APACHE TRIBE WATER SETTLEMENT ACT .....	325	.....	325	.....
SOUTH/CENTRAL ARIZONA INVESTIGATIONS PROGRAM .....	1,000	.....	1,000	.....
SOUTHERN ARIZONA WATER RIGHTS SETTLEMENT ACT PROJECT .....	1,703	.....	1,703	.....
YUMA AREA PROJECTS .....	1,327	23,173	1,327	23,173
LOAN FOR WHITE MOUNTAIN APACHE TRIBE, AZ .....	.....	.....	3,209	.....
CALIFORNIA				
CACHUMA PROJECT .....	837	837	837	837
CALIFORNIA INVESTIGATIONS PROGRAM .....	500	.....	500	.....
CALLEGUAS MUNICIPAL WATER DISTRICT RECYCLING PLANT .....	1,400	.....	1,400	.....
CENTRAL VALLEY PROJECTS:				
AMERICAN RIVER DIVISION .....	1,681	7,895	1,681	7,895
AUBURN-FOLSOM SOUTH UNIT .....	1,663	.....	1,663	.....
DELTA DIVISION .....	15,063	5,342	15,063	5,342
EAST SIDE DIVISION .....	1,676	2,750	1,676	2,750
FRIANT DIVISION .....	2,054	3,702	2,554	3,702
MISCELLANEOUS PROJECT PROGRAMS .....	10,838	958	10,838	958
REPLACEMENTS, ADDITIONS, AND EXTRAORDINARY MAINT .....	.....	25,000	.....	25,000
SACRAMENTO RIVER DIVISION .....	15,517	1,379	15,517	1,379
SAN FELIPE DIVISION .....	1,635	16	1,635	16
SAN JOAQUIN DIVISION .....	356	.....	7,356	.....
SHASTA DIVISION .....	178	7,876	178	7,876
TRINITY RIVER DIVISION .....	7,310	3,185	7,310	3,185
WATER AND POWER OPERATIONS .....	993	8,287	993	8,287
WEST SAN JOAQUIN DIVISION, SAN LUIS UNIT .....	3,047	5,478	3,047	5,478
YIELD FEASIBILITY INVESTIGATION .....	450	.....	450	.....
INLAND EMPIRE REGIONAL WATER RECYCLING PROJECT .....	.....	.....	100	.....
IRVINE BASIN GROUND & SURFACE WATER .....	.....	.....	100	.....
LAKE TAHOE REGIONAL WETLANDS .....	102	.....	2,602	.....
LONG BEACH AREA WATER RECLAMATION AND REUSE PROJECT .....	1,400	.....	1,400	.....
LONG BEACH DESALINATION RESEARCH AND DEVELOPMENT .....	700	.....	700	.....
MOKELUMNE RIVER REGIONAL WATER STORAGE & CONJUNCTIVE U .....	.....	.....	500	.....
ORLAND PROJECT .....	.....	703	.....	703
SALTON SEA RESEARCH PROJECT .....	400	.....	400	.....
SAN DIEGO AREA WATER RECLAMATION PROGRAM .....	3,500	.....	3,500	.....
SAN GABRIEL BASIN PROJECT .....	1,400	.....	1,400	.....
SAN JOSE AREA WATER RECLAMATION AND REUSE PROGRAM .....	208	.....	208	.....
SOBABO WATER RIGHTS SETTLEMENT PROJECT .....	5,000	.....	10,000	.....
SOLANO PROJECT .....	1,612	2,497	1,612	2,497
SOUTHERN CALIFORNIA INVESTIGATIONS PROGRAM .....	520	.....	520	.....
VENTURA RIVER PROJECT .....	397	195	397	195
COLORADO				
ANIMAS-LA PLATA PROJECT .....	53,743	445	53,743	445
COLBRAN PROJECT .....	190	3,695	190	3,695
COLORADO-BIG THOMPSON PROJECT .....	405	13,395	405	13,395
COLORADO INVESTIGATIONS PROGRAM .....	300	.....	300	.....
FRUITGROWERS DAM PROJECT .....	99	160	99	160
FRYINGPAN-ARKANSAS PROJECT .....	252	8,398	252	8,398
GRAND VALLEY UNIT, CRBSCP, TITLE II .....	170	1,307	170	1,307
LEADVILLE/ARKANSAS RIVER RECOVERY .....	30	2,935	30	2,935
LOWER COLORADO INVESTIGATIONS PROGRAM .....	250	.....	250	.....
MANCOS PROJECT .....	71	107	71	107
PARADOX VALLEY UNIT, CRBSCP, TITLE II .....	64	2,282	64	2,282
PINE RIVER PROJECT .....	189	157	189	157
SAN LUIS VALLEY PROJECT .....	244	4,636	244	4,636
UNCOMPAHGRE PROJECT .....	228	140	228	140
UPPER COLORADO RIVER OPERATIONS PROGRAM .....	250	.....	250	.....

## BUREAU OF RECLAMATION—WATER AND RELATED RESOURCES—Continued

[In thousands of dollars]

Project title	Budget estimate		Committee recommendation	
	Resources management	Facilities OM&R	Resources management	Facilities OM&R
IDAHO				
BOISE AREA PROJECTS .....	3,086	2,315	3,086	2,315
COLUMBIA AND SNAKE RIVER SALMON RECOVERY PROJECT FCRPS .....	18,000	.....	18,000	.....
IDAHO INVESTIGATIONS PROGRAM .....	300	.....	300	.....
LEWISTON ORCHARDS PROJECTS .....	1,234	30	1,234	30
MINIDOKA AREA PROJECTS .....	2,736	4,432	2,736	4,432
KANSAS				
KANSAS INVESTIGATIONS PROGRAM .....	25	.....	25	.....
WICHITA PROJECT—CHENEY DIVISION .....	10	395	10	395
WICHITA PROJECT—EQUUS BEDS DIVISION .....	50	.....	2,050	.....
MONTANA				
FORT PECK DRY PRAIRIE RURAL WATER SYSTEM .....	4,000	.....	14,000	.....
HUNGRY HORSE PROJECT .....	.....	1,865	.....	1,865
HUNTLEY PROJECT .....	31	56	31	56
LOWER YELLOWSTONE PROJECT .....	532	15	532	15
MILK RIVER PROJECT .....	314	1,486	314	1,486
MILK RIVER/ST. MARY DIVERSION REHABILITATION PROJECT .....	2,500	.....	4,000	.....
MONTANA INVESTIGATIONS .....	140	.....	140	.....
ROCKY BOYS/NORTH CENTRAL MONTANA RURAL WATER SYSTEM ...	1,000	.....	16,000	.....
SUN RIVER PROJECT .....	50	328	50	328
NEBRASKA				
MIRAGE FLATS PROJECT .....	16	119	16	119
NEVADA				
CITY OF NORTH LAS VEGAS [NORTH LAS VEGAS, WATER REUSE] ....	.....	.....	2,000	.....
HALFWAY WASH PROJECT STUDY .....	125	.....	125	.....
LAHONTAN BASIN PROJECT .....	4,745	2,531	4,745	2,531
LAKE MEAD/LAS VEGAS WASH PROGRAM .....	800	.....	2,000	.....
NEW MEXICO				
ALBUQUERQUE METRO AREA WATER & RECLAMATION REUSE .....	.....	.....	500	.....
CARLSBAD PROJECT .....	2,615	1,104	2,615	1,104
CHIMAYO, NM .....	.....	.....	500	.....
EASTERN NEW MEXICO INVESTIGATIONS PROGRAM .....	50	.....	50	.....
EASTERN NEW MEXICO RURAL WATER SUPPLY .....	.....	.....	500	.....
JICARILLA APACHE RESERVATION RURAL WATER SYSTEM .....	1,000	.....	5,000	.....
MIDDLE RIO GRANDE PROJECT .....	14,801	8,949	14,961	8,949
NAVAJO GALLUP WATER SUPPLY .....	.....	.....	7,791	.....
NAVAJO NATION INVESTIGATIONS PROGRAM .....	200	.....	200	.....
PECOS RIVER BASIN WATER SALVAGE PROJECT .....	.....	209	.....	209
RIO GRANDE PROJECT .....	824	4,175	824	4,175
SAN JUAN RIVER BASIN INVESTIGATIONS PROGRAM .....	150	.....	150	.....
SOUTHERN NEW MEXICO/WEST TEXAS INV. PROGRAM .....	150	.....	150	.....
TUCUMCARI PROJECT .....	24	17	24	17
UPPER RIO GRANDE BASIN INVESTIGATIONS .....	75	.....	75	.....
NORTH DAKOTA				
PICK-SLOAN MISSOURI BASIN—GARRISON DIVERSION .....	30,654	5,639	64,361	5,639
OKLAHOMA				
ARBUCKLE PROJECT .....	48	186	48	186
MC GEE CREEK PROJECT .....	20	644	20	644
MOUNTAIN PARK PROJECT .....	7	518	7	518
NORMAN PROJECT .....	25	452	25	452
OKLAHOMA INVESTIGATIONS PROGRAM .....	150	.....	150	.....
WASHITA BASIN PROJECT .....	7	1,048	7	1,048



## BUREAU OF RECLAMATION—WATER AND RELATED RESOURCES—Continued

[In thousands of dollars]

Project title	Budget estimate		Committee recommendation	
	Resources management	Facilities OM&R	Resources management	Facilities OM&R
W.C. AUSTIN PROJECT .....	23	435	23	435
OREGON				
CROOKED RIVER PROJECT .....	412	427	412	427
DESCHUTES PROJECT .....	300	182	800	182
EASTERN OREGON PROJECTS .....	573	272	573	272
KLAMATH PROJECT .....	20,589	4,411	20,589	4,411
KLAMATH DAM REMOVAL STUDY .....	2,000		2,000	
OREGON INVESTIGATIONS PROGRAM .....	300		450	
ROGUE RIVER BASIN PROJECT, TALENT DIVISION .....	814	331	1,014	331
SAVAGE RAPIDS DAM REMOVAL .....	1,160		1,160	
TUALATIN PROJECT .....	68	271	68	271
TUALATIN VALLEY WATER SUPPLY FEASIBILITY .....			300	
UMATILLA PROJECT .....	958	3,352	958	3,352
SOUTH DAKOTA				
LEWIS AND CLARK RURAL WATER SYSTEM .....	2,000		16,000	
MID-DAKOTA RURAL WATER PROJECT .....		15		15
MNI WICONI PROJECT .....	17,280	10,200	27,280	10,200
PERKINS COUNTY RURAL WATER SYSTEM .....	1,000		2,000	
RAPID VALLEY PROJECT .....		79		79
TEXAS				
BALMORHEA PROJECT .....	41	17	41	17
CANADIAN RIVER PROJECT .....	54	163	54	163
LOWER RIO GRANDE VALLEY WATER RESOURCES CONSERVATION P .....	50		2,550	
NUECES RIVER PROJECT .....	20	721	20	721
SAN ANGELO PROJECT .....	35	401	35	401
TEXAS INVESTIGATIONS PROGRAM .....	45		45	
UTAH				
HYRUM PROJECT .....	152	46	152	46
MOON LAKE PROJECT .....	4	76	4	76
NEWTON PROJECT .....	59	39	59	39
NORTHERN UTAH INVESTIGATIONS PROGRAM .....	200		700	
OGDEN RIVER PROJECT .....	213	177	213	177
PROVO RIVER PROJECT .....	1,002	433	1,002	433
SCOFIELD PROJECT .....	107	80	107	80
SOUTHERN NEVADA/UTAH INVESTIGATIONS PROGRAM .....	25		25	
SOUTHERN UTAH INVESTIGATIONS PROGRAM .....	225		225	
STRAWBERRY VALLEY PROJECT .....	248	21	248	21
WEBER BASIN PROJECT .....	747	745	1,747	745
WEBER RIVER PROJECT .....	50	109	50	109
WASHINGTON				
COLUMBIA BASIN PROJECT .....	5,692	10,762	5,692	10,762
ODESSA SUBAREA SPECIAL STUDY .....			3,000	
WASHINGTON AREA PROJECTS .....	193	15	193	15
WASHINGTON INVESTIGATIONS PROGRAM .....	150		150	
YAKIMA PROJECT .....	2,420	6,092	2,420	6,092
YAKIMA RIVER BASIN WATER ENHANCEMENT PROJECT .....	8,500		10,000	
WYOMING				
KENDRICK PROJECT .....	119	3,139	119	3,139
NORTH PLATTE PROJECT .....	266	1,351	266	1,351
SHOSHONE PROJECT .....	76	1,080	76	1,080
SUBTOTAL FOR PROJECTS .....	322,861	229,923	455,528	229,923

## BUREAU OF RECLAMATION—WATER AND RELATED RESOURCES—Continued

[In thousands of dollars]

Project title	Budget estimate		Committee recommendation	
	Resources management	Facilities OM&R	Resources management	Facilities OM&R
REGIONAL PROGRAMS				
COLORADO RIVER BASIN SALINITY CONTROL PROGRAM, TITLE I .....		11,450		11,450
COLORADO RIVER BASIN SALINITY CONTROL PROGRAM, TITLE I .....	6,970		6,970	
COLORADO RIVER STORAGE, [CRSP], SECTION 5 .....	3,449	4,888	3,449	4,888
COLORADO RIVER STORAGE, [CRSP], SECTION 8 .....	2,710		2,710	
COLORADO RIVER WATER QUALITY IMPROVEMENT PROGRAM .....	233		233	
DAM SAFETY PROGRAM:				
DEPARTMENT DAM SAFETY PROGRAM .....		2,029		2,029
INITIATE SOD CORRECTIVE ACTION .....		81,600		81,600
SAFETY OF EVALUATION OF EXISTING DAMS .....		18,250		18,250
DROUGHT EMERGENCY ASSISTANCE PROGRAM .....	488		488	
EMERGENCY PLANNING & DISASTER RESPONSE PROGRAM .....		1,432		1,432
ENDANGERED SPECIES RECOVERY IMPLEMENTATION PROGRAM .....	19,012		19,012	
ENVIRONMENTAL & INTERAGENCY COORDINATION ACTIVITIES .....	2,187		2,187	
ENVIRONMENTAL PROGRAM ADMINISTRATION .....	947		947	
EXAMINATION OF EXISTING STRUCTURES .....		7,675		7,675
FEDERAL BUILDING SEISMIC SAFETY PROGRAM .....		1,400		1,400
GENERAL PLANNING STUDIES .....	2,213		2,213	
LAND RESOURCES MANAGEMENT PROGRAM .....	8,682		8,682	
LOWER COLORADO RIVER OPERATIONS PROGRAM .....	21,448		22,128	
MISCELLANEOUS FLOOD CONTROL OPERATIONS .....		777		777
NATIVE AMERICAN AFFAIRS PROGRAM .....	6,197		6,197	
NEGOTIATION & ADMINISTRATION OF WATER MARKETING .....	1,563		1,563	
OPERATIONS AND PROGRAM MANAGEMENT .....	1,026	625	1,026	625
PICK-SLOAN MISSOURI BASIN—OTHER PICK SLOAN .....	3,321	36,205	3,321	36,205
POWER PROGRAM SERVICES .....	724	307	724	307
PUBLIC ACCESS AND SAFETY PROGRAM .....	598	155	598	155
RECLAMATION LAW ADMINISTRATION .....	2,199		2,199	
RECREATION & FISH & WILDLIFE PROGRAM ADMINISTRATION .....	1,625		1,625	
RESEARCH AND DEVELOPMENT:				
DESALINATION AND WATER PURIFICATION PROGRAM .....	2,133	1,600	2,133	1,600
SCIENCE AND TECHNOLOGY PROGRAM .....	9,200		10,200	
RURAL WATER LEGISLATION, TITLE I .....	2,348		2,348	
SITE SECURITY .....		28,877		28,877
TITLE XVI WATER RECLAMATION AND REUSE PROGRAM .....			2,500	
UNITED STATES/MEXICO BORDER ISSUES—TECHNICAL SUPPORT .....	96		96	
WATER CONSERVATION FIELD SERVICES PROGRAM .....	6,510		6,510	
WATER CONSERVATION INITIATIVE .....	37,192		22,192	
SUBTOTAL, WATER AND RELATED RESOURCES .....	465,932	427,193	587,779	427,193
UNDERFINANCING .....			— 18,404	— 3,193
TOTAL, WATER AND RELATED RESOURCES .....	893,125		993,125	

*White Mountain Apache Tribe, Arizona.*—The Committee recommends \$3,209,000 to be provided as the subsidy for a loan to the White Mountain Apache Tribe for a drinking water project.

*Central Valley Project—Friant Division, California.*—The Committee recommendation includes \$500,000 for the Semi Tropic Phase II groundwater banking.

*Central Valley Project—San Joaquin Division.*—The Committee recommendation includes \$7,000,000 for the San Joaquin River Restoration. These funds should be utilized in conjunction with and in advance of those funds available from the San Joaquin River Restoration Fund.

*Orange County Regional Water Reclamation Project.*—The Committee recognizes that the authorizing statute (Public Law 104-266 as amended by Public Law 111-11) authorizes a cap of \$20,000,000 in 1996 prices, which could escalate to as much as \$26,000,000 in 2010 prices for the Orange County Regional Water Reclamation Project. Accordingly, this project has not yet reached its authorization ceiling and is eligible for additional funding. Other projects may be similarly situated. The Committee encourages Reclamation to allocate surplus funds that may become available from the American Recovery and Reinvestment Act to this project and any other similarly situated project. The Committee expects the Bureau to provide accurate capability statements for all Title XVI projects that reflect the escalator clause. Capability statements should not contain restrictions and limitations that are based purely on internal Bureau policies, but rather should reflect the true maximum capacity of the Bureau under the governing statutes.

*Lake Tahoe Regional Wetlands, California and Nevada.*—The Committee recommendation includes \$2,602,000. Within the funds provided, \$2,000,000 is recommended for the Rosewood Creek, Area A project in Nevada.

*Sobabo Water Rights Settlement Project, California.*—The Committee recommends an additional \$5,000,000 above the budget request for this water rights settlement.

*Wichita Project—Equus Beds Division, Kansas.*—The Committee recommendation includes \$2,000,000 above the budget request to continue this project.

*Fort Peck-Dry Prairie Rural Water System, Montana.*—The Committee recommendation is \$14,000,000. \$9,000,000 of these funds should be applied to the tribal portions of the water system. These funds should be utilized in addition to the normal tribal/non-tribal split of the underlying funded amount in the budget (\$4,000,000) and provided by the Committee (\$1,000,000).

*Milk River/St. Mary's Diversion Project.*—The Committee urges the Bureau of Reclamation to combine NEPA compliance activities and preparation of design, specifications, and contract documents for the entire St. Mary's project including the diversion dam, fish passage structure, drop structures, siphon, and canal as a single activity.

*Rocky Boys/North Central Montana Rural Water System, Montana.*—The Committee recommendation is \$16,000,000. \$11,000,000 of these funds should be applied to the tribal portions of the water system. These funds should be utilized in addition to the normal tribal/non-tribal split of the underlying funded amount in the budget (\$1,000,000) and provided by the Committee (4,000,000).

*Jicarilla Apache Reservation Rural Water System, New Mexico.*—The Committee recommendation includes an additional \$4,000,000 above the budget request to continue work on this tribal water system.

*Navajo-Gallup Water Supply, New Mexico.*—The Committee recommendation includes \$7,791,000 for continued work on this tribal water project.

*Pick-Sloan Missouri Basin, Garrison Diversion Unit, North Dakota.*—Within the Committee recommendation, \$52,000,000 is rec-

ommended for rural water projects. Of this amount, \$26,000,000 shall be expended for the following projects: \$8,000,000 for the Northwest Area Water Supply; \$9,000,000 for the South Central Regional Water District; and \$9,000,000 for the Southwest Pipeline. Additionally the Committee recommends \$2,000,000 for the Standing Rock Sioux Tribe Irrigation Project. The Committee directs Reclamation to reexamine the Federal cost estimate of the annual operating costs of the Three Affiliated Tribes water system.

*Oregon Investigations Program, Oregon.*—\$150,000 above the budget request is recommended for developing appraisal-level designs and cost estimates for Umatilla on-reservation distribution systems.

*Rogue River Basin Project, Talent Division.*—The Committee recommendation includes \$200,000 for the Water for Irrigation Streams and Economy Feasibility study.

*Mni Wiconi Project, South Dakota.*—The Committee recommendation is \$33,280,000. \$10,000,000 of these funds should be applied to the tribal portions of the water system. These funds should be utilized in addition to the normal tribal/non-tribal split of the underlying funded amount in the budget (\$17,280,000).

*Northern Utah Investigations Program, Utah.*—The Committee has recommended an additional \$500,000 for the Rural Water Technology Alliance.

*Weber Basin Project, Utah.*—The Committee recommends \$1,000,000 for feasibility studies to increase the storage capacity of the reservoir impounded by the Arthur V. Watkins Dam.

*Yakima River Basin Water Enhancement Project, Washington.*—The Committee recommends an additional \$1,500,000 above the budget request for the Yakima River Basin Water Storage Plan to address water shortages in the basin.

*Drought Emergency Assistance.*—The Committee has provided the budget request for this program. Within the funds provided, the Committee urges the Bureau of Reclamation to provide full and fair consideration for drought assistance from the State of Hawaii.

*Lower Colorado River Operations Program.*—The Committee recommendation includes \$680,000 above the budget request for the Lower Colorado River Multi-Species Conservation Plan for California.

*Research and Development, Science and Technology Program.*—The Committee recommends \$1,000,000 above the budget request for Quagga and Zebra Mussel research activities. The Committee is concerned about the impacts to western waters of these two invasive species. Reclamation efforts to date have necessarily focused on addressing the problems caused by the mussels at Reclamation facilities. The Committee believes that Reclamation should establish a research program geared toward eradicating or controlling these invasive species.

*Title XVI, Water Reclamation, and Reuse.*—The Committee has provided \$2,500,000 for the WaterReuse Foundation. These funds are available to support the Foundation's research priorities.

*Water Conservation Field Services Program.*—Within the amounts provided, Reclamation is urged to continue urban water conservation projects identified through the Metropolitan Water District of Southern California Innovative Conservation Program;

industrial water efficiency surveys to assess opportunities to conserve water in industrial water use; and for weather based irrigation controller activities to pilot ways to speed distribution and acceptance of these landscape water efficiency devices.

*Water Conservation Initiative.*—The Committee encourages Reclamation to work with Water Research Laboratory at Utah State University to expand water quality monitoring in the Cache Valley, Utah, to provide the necessary data to reduce the uncertainty of water quality management decisions pertaining to Cutler Reservoir and to reduce the cost of maintaining and improving water quality in the region.

#### CENTRAL VALLEY PROJECT RESTORATION FUND

Appropriations, 2009 .....	\$56,079,000
Budget estimate, 2010 .....	35,358,000
Committee recommendation .....	35,358,000

The Committee recommends an appropriation of \$35,358,000 for the Central Valley Project Restoration Fund.

The Central Valley Project Restoration Fund was authorized in the Central Valley Project Improvement Act, title 34 of Public Law 102–575. This fund was established to provide funding from project beneficiaries for habitat restoration, improvement and acquisition, and other fish and wildlife restoration activities in the Central Valley project area of California. Revenues are derived from payments by project beneficiaries and from donations. Payments from project beneficiaries include several required by the act (Friant Division surcharges, higher charges on water transferred to non-CVP users, and tiered water prices) and, to the extent required in appropriations acts, additional annual mitigation and restoration payments.

#### CALIFORNIA BAY-DELTA RESTORATION

##### (INCLUDING TRANSFER OF FUNDS)

Appropriations, 2009 .....	\$40,000,000
Budget estimate, 2010 .....	31,000,000
Committee recommendation .....	41,000,000

This account funds activities that are consistent with the CALFED Bay-Delta Program, a collaborative effort involving 18 State and Federal agencies and representatives of California's urban, agricultural, and environmental communities. The goals of the program are to improve fish and wildlife habitat, water supply reliability, and water quality in the San Francisco Bay-San Joaquin River Delta, the principle hub of California's water distribution system.

#### POLICY AND ADMINISTRATION

Appropriations, 2009 .....	\$59,400,000
Budget estimate, 2010 .....	61,200,000
Committee recommendation .....	61,200,000

The Committee recommendation for general administrative expenses is \$61,200,000.

The policy and administrative expenses program provides for the executive direction and management of all reclamation activities, as performed by the Commissioner's offices in Washington, DC,

Denver, Colorado, and five regional offices. The Denver office and regional offices charge individual projects or activities for direct beneficial services and related administrative and technical costs. These charges are covered under other appropriations.

GENERAL PROVISIONS—DEPARTMENT OF THE INTERIOR

Section 201. The bill includes language regarding Bureau of Reclamation Reprogramming.

Section 202. The bill includes language regarding the San Luis Unit and the Kesterson Reservoir in California.

Section 203. The bill includes language that states requirements for purchase or lease of water from the Middle Rio Grande or Carlsbad Projects in New Mexico.

Section 204. The bill includes language regarding Drought Emergency Assistance.

Section 205. The bill includes language extending a project authorization.

Section 206. The bill includes language regarding the administration of the Desert Terminal Lakes Program.

Section 207. The bill includes language regarding the Desert Terminal Lakes Program.

Section 208. The bill includes language expending funds from the Desert Terminal Lakes Program. The National Fish and Wildlife Foundation will administer funds for water projects in the Walker River Basin, including a demonstration water leasing program to be managed by the Walker River Irrigation District.

Section 209. The Bill includes a provision pertaining to the North Dakota Natural Resources Trust.

Section 210. The bill contains a provision concerning CALFED.

## TITLE III

### DEPARTMENT OF ENERGY

#### LABORATORY DIRECTED RESEARCH AND DEVELOPMENT [LDRD]

The Committee recognizes the invaluable role the Laboratory Directed Research and Development [LDRD] program provides to the Federal Government and the Nation in general. Discretionary LDRD investments have been and will continue to be responsive to the energy needs of the Nation, as evidenced by recent R&D projects in materials science, optoelectronics, computer science, and high-energy density physics. Cutting-edge LDRD research provides the science base for energy-specific applications such as fuel cells, hydrogen technologies, carbon management, nuclear energy, and solid-state lighting. In addition, LDRD is the national labs' most important tool for maintaining the vitality of the national labs in support of other national security missions. LDRD enables the labs to hire the "best and brightest" young scientists and engineers and allows them to seek innovative science and technology solutions for current or emerging national security issues, including those of energy security. LDRD investments have been effective in providing solutions for today's energy problems and demonstrate the inherent flexibility of the program to provide national security mission support on a very timely basis. Energy climate research needs can best be addressed by continuing a vibrant LDRD program at the national laboratories.

#### PENSION SHORTFALLS

The Committee includes section 311 in the General Provisions to give the Secretary the authority to transfer funds as necessary to fully fund pension obligations. Over the last year, the stock market performance has had a devastating impact on the defined benefit funds of the current and former laboratory and plant employees. As required by law, these shortfalls must be closed. All personnel costs, including pension obligations are charged to the program as an indirect cost. In fiscal year 2009, the NNSA and Environmental Management program were forced to redirect nearly \$400,000,000 in mission funding to meeting required pension contributions. At the beginning of the year, the Department estimated that \$1,170,000,000 in pension contributions would be needed; however, subsequent estimates have projected shortfalls to increase by an additional \$260,000,000, a 22 percent increase, which can only be recovered through program funding. In the fiscal year 2010 budget request, the administration has attempted to provide additional funding to the various programs impacted, but significant funding gaps remain. In order to minimize the impact to program funding, especially those programs that are facing flat or declining budget

requests, the Committee felt it was prudent to provide the Department with additional authority to minimize the impact to programs and personnel.

### REPROGRAMMING GUIDELINES

The Department of Energy is directed to operate in a manner fully consistent with the following reprogramming guidelines. A reprogramming request must be submitted to the Committees on Appropriations for consideration before any implementation of a reorganization proposal which includes moving previous appropriations between appropriation accounts. The Department is directed to inform the Committees promptly and fully when a change in program execution and funding is required during the fiscal year. To assist the Department in this effort, the following guidance is provided for programs and activities funded in the Energy and Water Development and Related Agencies Appropriations Act. The Department is directed to follow this guidance for all programs and activities unless specific reprogramming guidance is provided for a program or activity.

*Definition.*—A reprogramming includes the reallocation of funds from one activity to another within an appropriation, or any significant departure from a program, project, activity, or organization described in the agency's budget justification as presented to and approved by Congress. For construction projects, a reprogramming constitutes the reallocation of funds from one construction project identified in the justifications to another project or a significant change in the scope of an approved project.

Any reallocation of new or prior year budget authority or prior year deobligations must be submitted to the Committees in writing and may not be implemented prior to approval by the Committees on Appropriations.

### ENERGY PROGRAMS

#### ENERGY EFFICIENCY AND RENEWABLE ENERGY

Appropriations, 2009 .....	<sup>1</sup> \$18,978,540,000
Budget estimate, 2010 .....	2,318,602,000
Committee recommendation .....	2,233,967,000

<sup>1</sup>Includes Emergency Appropriations of \$250,000,000 under Public Law 110-329 and \$16,800,000,000 under Public Law 111-5.

The Committee recommendation is \$2,233,967,000 for Energy Efficiency and Renewable Energy.

In updating the renewable energy resource assessments required by section 201 of the Energy Policy Act of 2005, the Committee recommends that each program area assess the amount of each type of renewable energy that can reasonably be expected to be deployed by the year 2030. The reports should be modeled on the Department's 20 percent Wind Energy by 2030 report issued in May 2008. The individual resource reports should be integrated into a single report that investigates multiple alternative scenarios for the potential deployment of renewable resources by 2030.

*Hydrogen Technology.*—The Committee recommends \$190,000,000, all above the request of \$0, to continue funding 189 contracts the Department has in place for fiscal year 2010, saving



approximately 140 jobs at universities, 150 at Federal laboratories, and 235 jobs within industry. The Committee provides additional funds to enable fuel research and development, early market deployment, transformation, and enabling activities in transportation applications. The Committee also looks forward to the 2009 release of the updated Hydrogen Program Plan that replaces the existing Posture Plan, and encourages the Secretary to consider it more carefully as the fiscal year 2011 program budget is developed.

*Fuel Cell Technologies.*—The Committee recommends \$0, rather than \$68,213,000, as requested, for Fuel Cell Technologies. Fuel cell technology can continue to be pursued under the Hydrogen Technology program in fiscal year 2010 as it has been in the past.

*Biomass and Biorefinery Systems R&D.*—The Committee recommends \$235,000,000, the same as the request. Within the available funds, the Committee directs the Department to provide not less than \$35,000,000 for a comprehensive research, development and deployment strategy focused on algae biofuels. This non-food source biofuel offers one of the best opportunities to develop large-scale production on non-arable land using non-potable water. The Committee encourages the Department to develop a balanced program to address technical challenges related to organism selection, cultivation, water usage, biofuel production, and land-use issues. The Department should particularly pursue algal biofuels that have a high potential to beneficially re-use industrial carbon dioxide and are fungible in existing infrastructure. The Committee expects the Department to enlist the participation and to provide funding to universities, laboratories and industry to support this effort.

Also, within available funds, \$7,500,000 is provided for coordination with the Fuels Technology subprogram under Vehicles Technologies to expand and accelerate testing of intermediate fuel blends (15 percent–20 percent ethanol mixed with 80 percent–85 percent gasoline). The testing is performed on vehicles, other engines, and infrastructure components to provide data on how these blends may affect materials, durability, performance and emissions, and alleviate supply/demand imbalances. Work should be done in coordination with the Vehicles Technology Program.

*Solar Energy.*—The Committee recommends \$255,000,000. From within the amount provided, the Committee directs the Department to provide \$30,000,000 to support the demonstration and deployment of concentrating solar technology. No funds are provided for the Solar Electricity Energy Innovation Hub.

The Committee notes that flexible solar cell roofing shingles and panels have the potential to provide significant distributed, renewable electricity generation. The Committee encourages the Department to support research, development, and demonstration of novel technologies, including innovative textiles, which have the potential to enhance power generation and reduce production and installation costs of solar cells and panels.

The budget request provides \$30,000,000 to establish a PV Manufacturing Initiative. The National Academies Board on Science, Technology, and Economic Policy is exploring the future of PV manufacturing in the United States, specifically the economic and institutional issues for technology-related public-private partner-

ships, conducting workshops in April, July, and October 2009. The Committee directs the Department to develop the PV Manufacturing Initiative consistent with the recommendations of these workshops. The Committee recognizes the value of creating a centralized facility to assist solar PV companies in making the transition to commercial production, and encourages the Department to create such a facility, consistent with the recommendations of these workshops, either at an existing facility to avoid additional mortgage costs, or at a separate facility.

*Wind Energy.*—The recommendation is \$85,000,000. The committee directs this office and the Office of Electricity to work collaboratively to improve wind systems integration and forecasting modeling to facilitate increased deployment of wind energy nationwide.

*Geothermal Technology.*—The recommendation for Geothermal Technology is \$50,000,000, the same as the administration's request. The Committee directs the Department to provide not less than \$5,000,000 to develop and deploy low temperature geothermal systems.

*Water Power Energy R&D.*—The Committee recommends \$60,000,000, a total of \$30,000,000 above the request. The Committee directs that all of the available increase be applied to expand marine and hydrokinetic research, development, and deployment. The Committee directs the Department to use the available funding to validate economic and technical viability of a variety of technologies and to provide a written report to Congress on the prospect of each of the technologies. In addition, the Department shall include its research and development priorities and goals for this program for the next 5 years. The Department is directed to utilize the Department's only marine sciences laboratory to undertake an R&D program to expand marine and hydrokinetic renewable energy programs consistent with section 633 of EISA 2007.

*Vehicle Technologies.*—The Committee recommends \$323,302,000. The Committee encourages the Department to continue investigating the full portfolio of transportation fuel options within the Fuels Technology Program, including biofuels, electricity, natural gas, hydrogen, and other advanced fuels.

Within available funds, \$2,200,000 is provided to the vehicles program for the Department to contract with the National Academy of Sciences to conduct a comprehensive analysis of energy use within the light-duty vehicle transportation sector, and use the analysis to conduct an integrated study of the technology and fuel options that could reduce petroleum consumption and greenhouse gas emissions.

Also within available funds, \$7,500,000 is provided for coordination with the Biomass program to expand and accelerate testing of intermediate fuel blends (15 percent–20 percent ethanol mixed with 80 percent–85 percent gasoline). The testing is performed on vehicles, other engines, and infrastructure components to provide data on how these blends may affect materials, durability, performance and emissions, and alleviate supply/demand imbalances.

The Committee further directs the Department to study the variety and density of recharging infrastructure options necessary to support significant penetration of plug-in, electric drive, light-duty

vehicles. The Department must report back to Congress on the progress of the secondary applications and disposal of electric drive vehicle batteries program required under Section K of 42 U.S.C. 17231.

*Building Technologies.*—The Committee recommends \$202,698,000, a decrease of \$35,000,000 to the request. No funds are provided for the Equipment Standards and Analysis Hub. The Committee has continued to invest additional resources in building technologies and other renewable technologies, but the Department has maintained the same goal of developing a zero-energy home in 2020. The Committee challenges the Department to better integrate renewable energy technology and focus the buildings research to achieve a zero-energy home sooner than the 2020 target date.

*Industrial Technologies.*—The Committee provides \$100,000,000, the same as the request.

*Federal Energy Management Program.*—The Committee recommends \$32,272,000, the same as the request. The Committee is concerned with the lack of progress being made at the Department in adapting Congressional direction to reduce its electricity usage and support deployment of increased efficiency technologies. The May 2009 Inspector General report finds the Department has not taken many possible and practical actions to reduce energy consumption associated with its information technology resources. The Committee has significantly increased funding to the Department for energy efficiency initiatives. Yet, it does not appear that the Department has implemented policies and procedures to save millions of dollars annually, i.e., through implementing more energy-efficient computer power management, thin-client computing, and data centers which should apply more cost-effective, power efficient storage systems. The Committee believes the Department should aggressively implement the IG's "low-hanging fruit" recommendations as well as work with the Office of Science and the NNSA Advanced Computing program to apply innovative technology solutions. The Committee notes these steps should be viewed as the bare minimum necessary to meet congressional and presidential directives to the Department.

*RE-ENERGYSE.*—The Committee recommends \$0, a decrease of \$115,000,000 from the request.

*Facilities and Infrastructure.*—The Committee recommends \$63,000,000, the same as the request. Of the total, \$44,000,000 is provided for the South Table Mountain Ingress/Egress and Traffic Capacity Upgrades project at the National Renewable Energy Laboratory, Golden, Colorado. Through the ARRA, Congress provided the Office of Energy Efficiency and Renewable Energy with \$16,800,000,000. The Committee would support the Department using ARRA funding for the South Mountain Table Ingress/Egress and Traffic Capacity Upgrades project, freeing up \$44,000,000 for energy research in fiscal year 2010. If the Department is able to change the funding source for this project, the Committee supports the Department using the \$44,000,000 to fund the proposed Fuels From Sunlight and Energy Efficient Building Systems hubs at \$22,000,000 each.

*Weatherization Assistance Program.*—The Committee recommends \$200,000,000. Of that amount, \$3,300,000 is for training

and technical assistance. The Committee understands the Department is looking at non-traditional initiatives to increase the effectiveness of the weatherization program. From within available funds, the Committee directs the Department to develop two pilot projects, at \$35,000,000 each. The first is for the purpose of demonstrating energy savings through use of improved insulating and sealing in homes built prior to 1980. The Committee also directs the Department to develop a pilot project that would increase the leverage of Federal funding through the formation of partnerships between the Department and traditional and/or non-traditional weatherization providers. The current Weatherization Assistance Program leverages less than \$1 from non-Federal sources for every Federal dollar invested. The Committee hopes the Department could attain a \$3 to \$1 match.

*Intergovernmental Activities.*—The Committee recommends \$50,000,000 for State Energy Programs, \$10,000,000 for Tribal Energy Activities, and \$5,000,000 for the Renewable Energy Production Incentive.

*Program Direction.*—The Committee recommends \$152,620,000.

*Program Support.*—The Committee recommends \$72,000,000. The Committee is supportive of two new efforts called Strategic Priorities and Impact Analysis and Commercialization, and provides \$15,000,000 and \$25,000,000 respectively. The Committee understands the International Renewable Energy Program is being transferred to this account in fiscal year 2010, where it is being increased to \$10,000,000 from the \$5,000,000 appropriated in fiscal year 2009. Within the funds provided, the Department is directed to begin conducting feasibility studies of the most promising strategies and projects identified in the recently updated Territorial Energy Assessment. Authorized by section 252 of the Energy Policy Act of 2005, the Assessment is looking at strategies and projects that have the greatest potential for reducing the dependence of U.S. territories and freely associated states on imported oil. Further, of the International Renewable Energy Program funding, \$2,000,000 is available to support the U.S.-Israeli energy cooperation agreement.

*Congressionally Directed Spending Items.*—The Committee includes \$148,075,000 for the following list of projects that provide for research, development, and demonstration of energy efficiency or renewable energy technologies or programs. The Committee reminds recipients that statutory cost-sharing requirements may apply to these projects.

The Committee directs \$2,000,000 of the total provided to the Hawaii Sustainable Energy Security project be used to evaluate the efficacy of integrating the full range of renewable energy technologies into electricity grids including, but not limited, to hydro electricity, solar, and photovoltaics. Additionally, of the total provided to the Hawaii Renewable Energy Development Venture project, \$2,000,000 is to support pilot/commercial scale demonstrations using renewable, nonfossil energy resources that provide documentation of the efficacy of renewable energy technologies and measures of the carbon footprint and other environmental impacts associated with such projects, which could include but are not limited to cold seawater air conditioning, photovoltaics, and solar. Fi-

nally, of the total provided for the Development of High Yield Tropical Feedstocks and Biomass Conversion project, \$2,000,000 is for support of on-farm demonstration of feedstock production and conversion technologies and the Committee recommends expansion of these activities to the American Pacific region through a partnership with the Western Insular Pacific Subcenter.

#### CONGRESSIONALLY DIRECTED ENERGY EFFICIENCY AND RENEWABLE ENERGY PROJECTS

Project title	Amount	Requestor
21st Century Renewable Fuels, Energy, and Materials Initiative .....	\$1,250,000	Senators Levin, Stabenow
A123Systems Large Format Nanophosphate Batteries for Solar Energy Storage .....	1,000,000	Senators Levin, Stabenow
Algae Biofuels Research .....	2,000,000	Senators Murray, Cantwell
Algae to Ethanol Research and Evaluation .....	750,000	Senators Lautenberg, Menendez
Algal-Based Renewable Energy for Nevada .....	800,000	Senator Reid
Alternative and Unconventional Energy Research and Development .....	10,000,000	Senator Bennett
Alternative Energy School of the Future .....	1,200,000	Senator Reid
Bayview Gas to Energy Project .....	1,000,000	Senator Bennett
Ben Franklin Technology Partners—Clean Technology Commercialization Initiative .....	500,000	Senator Casey
Biodiesel Blending .....	600,000	Senator Kohl
Biodiesel Feedstock Development Initiative (MO) .....	1,000,000	Senator Bond
Biomass Energy Resources Center .....	1,000,000	Senator Leahy
Black Hills State Heating and Cooling Plant .....	1,000,000	Senators Johnson, Thune
Cellulosic Diesel Biorefinery .....	1,000,000	Senators Lautenberg, Menendez
Center for Biomass Utilization .....	7,000,000	Senators Dorgan, Conrad
Center for Nanoscale Energy .....	5,000,000	Senator Dorgan
Center for Ocean Renewable Energy .....	750,000	Senator Shaheen
Central Vermont Recovered Biomass Facility .....	500,000	Senator Leahy
Clean Power and Energy Research Consortium .....	1,000,000	Senator Landrieu
Commercial Building Energy Efficiency Demonstration .....	500,000	Senator Durbin
Cooling Heating and Power (Micro-CHP) and Bio-Fuel Application Center .....	2,000,000	Senator Cochran
Development of an Economic and Efficient Biodiesel Production Process .....	750,000	Senator Hagan
Development of Biofuels Using Ionic Transfer Membranes .....	1,500,000	Senator Reid
Development of High Yield Tropical Feedstocks and Biomass Conversion .....	6,000,000	Senator Inouye
DRI Renewable Energy Center [REC] .....	500,000	Senator Reid
Energy Storage/Conservation and Carbon Emissions Reduction Demonstration Project ..	400,000	Senators Kennedy, Kerry
EngenuitySC Commercialization and Entrepreneurial Training Project .....	500,000	Senator Graham
Fallon Paiute-Shoshone Tribe Demonstration Energy Park .....	200,000	Senator Reid
Fluid Flow Optimization of Aerogel Blanket Process Project .....	300,000	Senators Kennedy, Kerry
Fuel Cell Durability Research .....	1,000,000	Senator Dodd
Gas heat pump cooperative training program .....	250,000	Senator Reid
Genetic Improvement of Switchgrass .....	1,500,000	Senator Reed
Great Basin College—Direct-Use Geothermal Demonstration Project .....	1,000,000	Senator Reid
Great Lakes Institute for Energy Innovation .....	1,000,000	Senator Voinovich
Great Plains Wind Power Test Facility, Texas Tech University, Lubbock, TX .....	2,000,000	Senator Hutchinson
Hawaii Energy Sustainability Program .....	6,000,000	Senators Inouye, Akaka
Hawaii Renewable Energy Development Venture .....	6,000,000	Senator Inouye
High Speed Wind Turbine Noise Model with Suppression .....	1,000,000	Senator Cochran
Hydrogen Production and Delivery Technology .....	500,000	Senators Dodd, Lieberman
HyperCAST R&D Funding for Vehicle Energy Efficiency .....	750,000	Senator Bennet
Independent Energy Community Renewable Power System .....	1,000,000	Senator Bennett
Institute for Sustainable Energy .....	750,000	Senator Sessions
Iowa Central Community College Renewable Fuel Testing Laboratory .....	750,000	Senator Harkin
Lane Community College Energy Demonstration Building .....	550,000	Senators Wyden, Merkley

**CONGRESSIONALLY DIRECTED ENERGY EFFICIENCY AND RENEWABLE ENERGY PROJECTS—  
Continued**

Project title	Amount	Requestor
Lansing Plug-In Hybrid Initiative .....	750,000	Senators Levin, Stabenow
Low Cost Production of Thin-film Photovoltaic [PV] Cells .....	1,200,000	Senator Specter
Marine Energy Technology .....	1,750,000	Senator Murray
MidSouth/Southeast BioEnergy Consortium .....	1,000,000	Senators Lincoln, Pryor
Montana Algal BioDiesel Initiative .....	500,000	Senators Baucus, Tester
Montana Bio-Energy Center of Excellence .....	2,250,000	Senators Baucus, Tester
Nanostructured Materials for Improved Photovoltaics .....	1,000,000	Senator Cochran
Nanostructured Solar Cells for Increased Efficiency and Lower Cost .....	500,000	Senators Lincoln, Pryor
National Center of Excellence in Energy Storage Technology .....	1,000,000	Senator Voinovich
National Open-Ocean Energy Laboratory .....	2,000,000	Senators Bill Nelson, Martinez
National Wind Energy Center, University of Houston, Houston, TX .....	2,000,000	Senator Hutchison
Near Zero Carbon Footprint Energy Creation Through Thermal Oxidation .....	1,000,000	Senator Specter
Nevada Renewable Energy Integration and Development Consortium .....	3,000,000	Senator Reid
NIREC—Nevada Institute for Renewable Energy Commercialization .....	1,000,000	Senator Reid
Northern Nevada Renewable Energy Training Project .....	500,000	Senator Reid
Norwich Cogeneration Initiative .....	750,000	Senators Dodd, Lieberman
Novel Photocatalytic Metal Oxides .....	250,000	Senator Ben Nelson
Offshore Wind Initiative .....	5,000,000	Senators Collins, Snowe
Ohio Advanced Energy Manufacturing Center .....	500,000	Senator Brown
Oregon Solar Highway—Innovative Use of Solar Technology .....	1,000,000	Senators Wyden, Merkley
Placer County Biomass Utilization Pilot Project .....	1,000,000	Senator Feinstein
Power Cube for Wind Power and Grid Regulation Services .....	500,000	Senator Specter
Renewable Energy Clean Air Project [RECAP] .....	1,000,000	Senator Klobuchar
Renewable Energy Demonstration .....	500,000	Senator Durbin
Renewable Energy Feasibility Study and Resources Assessment .....	500,000	Senator Reid
Renewable Energy Initiative .....	500,000	Senator Durbin
Renewable Energy Initiatives for Clark County, Nevada Parks and Recreation .....	1,000,000	Senator Reid
Research on Fuel Cell Powered by Hydrogen Produced from Biomass to Provide Clean Energy for Remote Farms away from Electric Grids.	675,000	Senator Schumer
San Francisco Electric Vehicle Infrastructure Initiative .....	500,000	Senator Boxer
Shenandoah Valley as a National Demonstration Project Achieving 25 Percent Renewable Energy by the Year 2025.	750,000	Senators Webb, Warner
Smart Energy Program .....	500,000	Senators Dodd, Lieberman
Solar Compactor Energy Efficiency Research Demonstration Project .....	300,000	Senators Kennedy, Kerry
Solar Electric Power for Nonsectarian Educational and Social Services Facility .....	500,000	Senator Reid
Solar Energy Development, University of Maine at Presque Isle, ME .....	800,000	Senator Collins
Solar Energy Zone Planning and Infrastructure for the Nevada Test Site and Adjacent Lands.	1,000,000	Senator Reid
Solar Panels in Municipal Owned Buildings .....	1,000,000	Senators Lautenberg, Menendez
Solar Pioneer and Solar Entrepreneur Programs .....	500,000	Senator Gillibrand
Southern Pine Based Biorefinery Center .....	1,000,000	Senator Chambliss
Southern Regional Center for Lightweight Innovative Designs .....	4,000,000	Senator Cochran
Southwest Alaska Regional Geothermal Energy Project .....	2,500,000	Senators Murkowski, Begich
Strategic Biomass Initiative .....	500,000	Senator Cochran
Student Sustainability Initiatives .....	300,000	Senator Sanders
Sun Grant Initiative .....	2,750,000	Senator Johnson
Sustainable Energy Research Center .....	10,000,000	Senator Cochran
Switchgrass Biofuel Research: Carbon Sequestration and Life Cycle Analysis .....	500,000	Senator Ben Nelson
The CUNY Energy Institute .....	1,550,000	Senators Schumer, Gillibrand

CONGRESSIONALLY DIRECTED ENERGY EFFICIENCY AND RENEWABLE ENERGY PROJECTS—  
Continued

Project title	Amount	Requestor
Thin Film Photovoltaic Research & Development .....	500,000	Senator Leahy
Unconventional and Renewable Energies Research Utilizing Computer Simulations .....	2,500,000	Senator Bennett
University of Louisville Research and Energy Independence Program .....	2,000,000	Senator McConnell
University of New Haven Solar Testing and Training Lab .....	500,000	Senator Dodd
UNR—Biodiesel from Food Waste .....	1,000,000	Senator Reid
UNR—Great Basin Center for Geothermal Energy .....	1,000,000	Senator Reid
UNR—Mass Exchanger Technology for Geothermal and Solar Energy Systems .....	1,200,000	Senator Reid
Vermont Biofuels Initiative .....	750,000	Senator Leahy
Vermont Energy Investment Corporation .....	450,000	Senator Sanders
Wallowa County Integrated Biomass Energy Center .....	500,000	Senators Wyden, Merkley
Washoe Wind Turbine Demonstration Project .....	50,000	Senator Reid
Wind Turbine Development .....	1,000,000	Senators Baucus, Tester
Wind Turbine Infrastructure for Green Energy and Research on Wind Power in Delaware	1,000,000	Senators Carper, Kaufman

ELECTRICITY DELIVERY AND ENERGY RELIABILITY

Appropriations, 2009 .....	<sup>1</sup> \$4,637,000,000
Budget estimate, 2010 .....	208,008,000
Committee recommendation .....	179,483,000

<sup>1</sup> Includes Emergency Appropriations of \$4,500,000,000 under Public Law 111–5.

The Committee provides \$179,483,000 for Electricity Delivery and Energy Reliability. No funding is provided for the Grid Materials, Devices and Systems Hub.

The Committee is supportive of the increased investment in cyber security funding to support a coordinated research and development strategy that will improve the security of our national electricity grid and establish the appropriate protocols and policies for the integration on smart grid technology and to validate and test SCADA technologies and software. To ensure the effective deployment of this technology in the electric transmission system the Committee directs the Department to establish a private sector organization to identify vulnerabilities, and develop research and development and deployment strategies. It is important the users, owners and operators of the bulk power system are able to work with Federal agencies and laboratories to test and validate technologies and software and develop and disseminate best practices to ensure the thorough deployment of the state-of-the-art technology. In addition, this organization must include broad representation of owners, operators, users, and technology providers. Due to the international threat the Department should include other countries that face similar cyber security threats to share best practices to the extent possible. The Committee recommends that the Department provide up to 50 percent of the funding for cyber security to establish the organization and execute the recommended research, development and deployment strategy.

*Congressionally Directed Spending Items.*—The Committee includes \$6,475,000 for the following list of projects that provide for research, development, and demonstration of electricity delivery and energy reliability technologies or programs. The Committee re-

minds recipients that statutory cost-sharing requirements may apply to these projects.

#### CONGRESSIONALLY DIRECTED ELECTRICITY DELIVERY AND ENERGY RELIABILITY PROJECTS

Project title	Amount	Requestor
Energy Development and Reliability .....	\$325,000	Senator Dorgan
Navajo Nation Electrification Program .....	1,750,000	Senators Bingaman, Tom Udall
North Dakota Energy Workforce Development .....	1,900,000	Senator Dorgan
Oswego County BOCES Wind Turbine Model Project .....	200,000	Senator Schumer
Power Grid Reliability and Security .....	1,000,000	Senators Murray, Cantwell
Technology Development .....	300,000	Senator Dorgan
UVM Smart Energy Grid Research .....	500,000	Senator Leahy
Watkins Glen, Schuyler County Gas Storage project .....	500,000	Senator Gillibrand

#### NUCLEAR ENERGY

Appropriations, 2009 .....	\$792,000,000
Budget estimate, 2010 .....	761,274,000
Committee recommendation .....	761,274,000

#### RESEARCH AND DEVELOPMENT

The Committee recommendation for nuclear energy research and development totals \$761,274,000.

*Integrated University Program.*—The Committee provides \$5,000,000 to restore funding to current year levels and sustain the ongoing collaboration between the Office of Nuclear Energy, NNSA's Office of Nuclear Nonproliferation and the Nuclear Regulatory Commission to support the education and training of engineers and scientists in nuclear engineering, as well as nonproliferation, nuclear forensics, and nuclear safeguards missions. This funding is to be used consistent with the authorization provided in section 313 of Public Law 111–8. This funding is not intended to supplant university research funding provided within the nuclear energy research and development activities. Studies by the American Physical Society, American Association for the Advancement of Science, and the American Nuclear Society recommended Federal investment in university research and training in nuclear engineering and forensics as well.

*Nuclear Power 2010.*—The Committee recommends \$120,000,000, an increase of \$100,000,000. This funding is to be used to support the engineering design work of U.S. reactor designs in the development of a license application to the Nuclear Regulatory Commission. Not only will this reactor design facilitate deployment in the United States, but will also support export sales, where there is strong interest in nuclear power.

*Generation IV Nuclear Energy Systems.*—The Committee recommendation is \$143,000,000. The Committee has shifted \$10,000,000 to the Research Reactor Infrastructure program to support university-led research and fund critically important equipment upgrades.

Within the available funds, \$10,000,000 is provided to focus on existing light water reactor technology life extension. Consistent with the MIT Study "Update of the MIT 2003 Future of Nuclear



Power” the Committee directs the Department to evaluate the issues related to extending the life of the existing light water reactors to 80 years and support research to increase the power output of future light water reactors.

The Committee is concerned the budget request for this program lacks focus and mission. This is demonstrated by the fact that this budget reverses the previous decision by the program to focus on two advanced reactor technologies in favor of supporting research on six different technologies. This is a step backwards and unproductive in advancing deployment of new reactor designs. The Committee directs the program to select two reactor technologies in fiscal year 2010 and focus its research on those designs that offer the best opportunity to realize commercial deployment, a high level of safety and efficiency and exhibit the best waste management characteristics.

The Committee does believe advanced computing and simulation can play a critical role in developing advanced fuels and modeling reactor performance. As such, the Committee supports the establishment of the Energy Innovation Hub for Modeling and Simulation. Advanced computing can only be effective if its software codes are supported by validated experiments which are supported by the Fuel Cycle Research and Development program. The Committee also recommends this office support an industry cost shared demonstration program to develop and test high performance light water reactor fuel utilizing ceramic cladding.

The Committee appreciates the fact that ongoing nuclear research is being performed in aging nuclear facilities at our national laboratories and campuses. The Committee believes investment in these facilities is critical if the Department is going to support a robust research program to develop advanced fuels and reactor technologies. The Committee recommends \$20,000,000 from within the available funding to be divided evenly between Oak Ridge and Los Alamos National Labs for hot cell and nuclear testing infrastructure. The Committee has also made additional investment in university research reactors and the Idaho National Laboratory infrastructure as well.

*Fuel Cycle Research and Development.*—The Committee recommends \$145,000,000 for this program, the same as current year levels. The Committee cannot support the proposed innovation hub in extreme materials in light of the termination of the LANSCE Facility upgrade at Los Alamos, which offers the best existing opportunity to serve the extreme materials research mission. Like the Generation IV program, this program request lacks specificity, yet the mission is critical to addressing our current and future spent fuel needs, especially in light of the administration’s decision to abandon Yucca Mountain. Consistent with the recommendations proposed in the MIT Update Study, the Committee directs the Department to support the following R&D strategy: (1) Continue to support fuel separations technologies to validate and demonstrate the capability of technologies and processes that will produce separate fuel, actinides and fission byproducts and produce new fuel pellets for testing; (2) expand the capability to utilize computer simulation and modeling to support this mission; (3) consider alternatives to the existing waste management strategy to support a

wider variety of waste solutions including long term geologic repositories and interim strategies (funding may be provided to support site specific research and characterization, in order to develop fuels that improve long-term waste handling and storage requirements); and (4) develop a strategy in cooperation with industry to support material protection control and accounting of nuclear material.

#### RADIOLOGICAL FACILITIES MANAGEMENT

*Space and Defense Infrastructure.*—The Committee recommends the budget request for this activity at \$47,000,000.

*Research Reactor Infrastructure.*—The Committee recommends \$15,000,000 for this activity to support facility upgrades at reactor facilities and equipment purchases for universities that support nuclear engineering programs consistent with historic funding levels. The budget request had buried this activity within the Idaho facilities management program.

*Pu-238 Production Restart Project.*—The Committee recommends no funding for this program at this time. The Committee understands the importance of this mission and the capability provided to other Federal agencies. However, the Department's proposed plutonium reprocessing program is poorly defined and lacks an overall mission justification as well as a credible project cost estimate. Sustaining the plutonium mission is a costly but an important responsibility. The Committee expects the Department to work with other Federal agency customers to develop an equitable and appropriate cost-sharing strategy to sustain this mission into the future.

#### IDAHO FACILITIES MANAGEMENT

The Committee recommends \$211,274,000. The Committee opposes the Department's decision to included research reactor funding within the Idaho Facilities Management line. The additional funding provided in this account and the funds provided for research reactors shall be applied to support upgrades to the Advanced Test Reactor Life Extension program for a total increase of 12,700,000 for the ATR. This is a one-of-a-kind user facility supporting research and mission need for Federal customers, academia, and commercial users that must be maintained. The Committee recognizes that this account has received \$45,000,000 in additional funding to offset shortfalls in pension funding caused by poor market performance. Without these funds, mission priorities and goals would be compromised.

#### PROGRAM DIRECTION

The Committee recommends \$73,000,000 to Program Direction, consistent with the budget request.

*Congressionally Directed Spending Items.*—The Committee includes \$2,000,000 for the following list of projects that provide for research, development, and demonstration of nuclear energy technologies or programs. The Committee reminds recipients that statutory cost-sharing requirements may apply to these projects.

## CONGRESSIONALLY DIRECTED NUCLEAR ENERGY PROJECTS

Project title	Amount	Requestor
Nuclear Fabrication Consortium .....	\$2,000,000	Senator Voinovich

## FOSSIL ENERGY RESEARCH AND DEVELOPMENT

Appropriations, 2009 .....	<sup>1</sup> \$4,276,320,000
Budget estimate, 2010 .....	617,565,000
Committee recommendation .....	699,200,000

<sup>1</sup> Includes emergency appropriations of \$3,400,000,000 under Public Law 111-5.

The Committee recommendation for Fossil Energy Research and Development is \$699,200,000. No funds are provided for the Clean Coal Power Initiative and FutureGen because of substantial increases in the American Recovery and Reinvestment Act. The Committee urges the Department to work thoroughly but expeditiously to utilize these funds as well as to expand its efforts on innovative concepts for beneficial reuse of carbon dioxide activities. The Committee has also added bill language to permit the Department to vest title to property acquired for all programs under Fossil energy appropriations in the same manner as authorized for the Clean Coal Power Initiative.

*Fuels and Power Systems.*—The Committee recommends \$428,200,000 for fuels and power systems which is \$24,300,000 above the request. The recommendation includes \$58,000,000 for Innovations for Existing Plants [IEP]. The IEP program is directed to continue carbon capture research for the existing fleet. Of the IEP funds, \$10,000,000 is for Federal laboratories, in collaboration with universities, to continue research and development on the critical link between water and fossil energy extraction including unconventional fossil energy resources and utilization. The Committee also supports \$5,000,000, in additional research for the mercury research program. The Committee provides \$2,000,000 for the Department to work with utilities, cooperatives, and municipalities to perform an assessment of coal-fired power plants in the existing U.S. fleet that would be suitable candidates for consideration of CO<sub>2</sub> capture retrofits. The Committee expects the Department to assess the retrofit capacity based on a wide range of variables, including available space, water supplies, sequestration potential, labor, and other options. The Committee expects the Department to provide the estimated cost and schedule for the various control technology options that are known at this time. The Committee recommends \$65,000,000 for the Advanced Integrated Gasification Combined Cycle activities and \$32,000,000 for the Advanced Turbines program. The Committee recommends \$160,200,000 for Carbon Sequestration activities but does not support the request for the hub. The Committee has provided \$5,000,000 to be applied to advanced computational modeling and visualization to be applied to the large regional sequestration demonstration projects research. The Committee has further provided \$5,000,000 for the Department to explore co-sequestration technology opportunities. The Committee recommends \$25,000,000 for Fuels to support both fuels research from coal liquids and hydrogen. Within available funds for Fuels, the Committee recommends adequate funding to continue

the integrated coal-biomass research activities. The Committee recommends \$58,000,000 for Fuel Cell research. The Committee recommends \$30,000,000 for Advanced Research, including \$3,000,000 for computational energy sciences.

*Natural Gas Technologies.*—The Committee recommendation includes \$25,000,000. Of this amount \$15,000,000 is provided to methane hydrates, and \$5,000,000 is for research to continue to develop solutions to minimize the impact or develop treatment technologies for produced water as a by-product of natural gas production. Within the remaining funding, the Committee recommends supporting unconventional natural gas production from basins that contain tight gas sands, shale gas and coal bed methane resources.

*Unconventional Fossil Energy Technologies.*—The Committee recommends \$25,000,000 to establish an unconventional fossil energy technologies program to replace the Oil Technologies program that was not funded in this budget request. The Committee recognizes the vast potential to increase the domestic production of on-shore unconventional oil, natural gas and coal resources but acknowledges the technological, economic and environmental challenges related to their production. The Committee recommends \$20,000,000 to establish a comprehensive research, development and technology deployment strategy to focus a range of unconventional oil, gas and coal resources. In demonstrating technology applications, the program should look to deploy new or validate existing technology applications and should consider demonstrations located on state or Federal lands. The Committee encourages the Department to include funding for interdisciplinary university, laboratory and industry consortia to develop and test technology and productions methods. Within available funds, the Committee recommends \$1,200,000 to continue the Risk Based Management System and the continuation of the stripper well program.

The Committee recognizes the tremendous potential that computational visualization can offer in the development and efficient production of unconventional fossil resources in an environmentally responsible manner. The Committee directs the Office of Fossil Energy, the Office of Science and NNSA's Advanced Computing and Simulation [ASC] program to work in collaboration with universities and industry to establish a joint program to develop a research, development and demonstration strategy and make awards to enhance domestic production and minimize the environmental impacts utilizing advanced simulation and visualization capabilities. The Committee recommends \$5,000,000 be provided to the Office of Fossil Energy and has also provided funds to Office of Science and the NNSA's ASC campaign for this joint effort.

*Program Direction.*—The Committee recommends \$158,000,000 for Program Direction, of which \$125,150,000 is for the National Energy Technology Laboratory.

*Other Programs.*—The Committee recommends \$20,000,000 for Plant and Capital Equipment. The Committee recommends \$10,000,000 for Fossil Energy Environmental Restoration. The Committee recommends \$700,000 for the Special recruitment programs. The Committee recommends \$5,000,000 for Cooperative research and development. The Committee continues to support the Department's project management efforts and the role of the Na-

tional Energy Technology Laboratory [NETL], with the assistance of the Golden Field Office, in setting up a successful Project Management Center [PMC]. The Committee encourages the Office of Energy Efficiency and Renewable Energy to continue collaboration and funding of the PMC with the NETL.

*Congressionally Directed Projects.*—The Committee recommends \$27,300,000 for the following congressionally directed projects.

#### CONGRESSIONALLY DIRECTED FOSSIL ENERGY PROJECTS

Project title	Amount	Requestor
Design and Test of an Advanced SOFC Generator in PA .....	\$1,000,000	Senator Specter
Fossil Fuel Research and Development .....	4,000,000	Senators Dorgan, Conrad
Gulf of Mexico Hydrates Research Consortium .....	1,200,000	Senator Cochran
Hydrogen Fuel Dispensing Station .....	1,200,000	Senator Byrd
Long Term Environmental and Economic Impacts of the Development of a Coal Liquefaction Sector in China.	1,250,000	Senator Byrd
Montana ICTL Demonstration .....	1,250,000	Senator Baucus
National Center for Hydrogen Technology .....	3,000,000	Senators Dorgan, Conrad
Shale Oil Upgrading Utilizing Ionic Membranes .....	1,500,000	Senator Bennett
Shallow Carbon Sequestration Pilot Demonstration (MO) .....	2,400,000	Senator Bond
Utah Center for Ultra-Clean Coal Utilization and Heavy Oil Research .....	8,000,000	Senator Bennett
Utah Coal and Biomass to Fuel Pilot Plant .....	2,500,000	Senator Bennett

#### NAVAL PETROLEUM AND OIL SHALE RESERVES

Appropriations, 2009 .....	\$19,099,000
Budget estimate, 2010 .....	23,627,000
Committee recommendation .....	23,627,000

The Committee recommends \$23,627,000 for fiscal year 2010, the same as the budget request for the operation of the naval petroleum and oil shale reserves. The Department is directed to operate the field as close to maximum efficiency as possible, given available funds.

#### STRATEGIC PETROLEUM RESERVE

Appropriations, 2009 .....	\$205,000,000
Budget estimate, 2010 .....	229,073,000
Committee recommendation .....	259,073,000

The Committee recommends \$259,073,000 for the Strategic Petroleum Reserve. Of these funds, the Committee directs the Department to use \$30,000,000 for engineering activities at the Richton, Mississippi expansion site. While the Committee has provided for the operation of the Strategic Petroleum Reserve, it does not support any other expansion activities at this time. The Committee also provides for the purchase of a commercial storage cavern to replace an existing Strategic Petroleum Reserve cavern due to environmental risk at the Bayou Choctaw, Louisiana site.

#### NORTHEAST HOME HEATING OIL RESERVE

Appropriations, 2009 .....	\$9,800,000
Budget estimate, 2010 .....	11,300,000
Committee recommendation .....	11,300,000

The Committee recommends \$11,300,000, the same as the budget request.

#### ENERGY INFORMATION ADMINISTRATION

Appropriations, 2009 .....	\$110,595,000
Budget estimate, 2010 .....	133,058,000
Committee recommendation .....	110,595,000

The Committee recommends \$110,595,000 for the Energy Information Administration.

#### NON-DEFENSE ENVIRONMENTAL CLEANUP

Appropriations, 2009 .....	<sup>1</sup> \$744,819,000
Budget estimate, 2010 .....	237,517,000
Committee recommendation .....	259,829,000

<sup>1</sup> Includes emergency appropriations of \$483,000,000 under Public Law 111-5.

The Committee's recommendation for Non-Defense Environmental Cleanup is \$259,829,000, a total of \$22,312,000 above the request.

*Reprogramming Control Levels.*—In fiscal year 2010, the Environmental Management program may transfer funding between operating expense funded projects within the controls listed below using guidance contained in the Department's budget execution manual [DOE M 135.1-1A, Chapter IV]. All capital construction line item projects remain separate controls from the operating projects. The Committees on Appropriations in the House and Senate must be formally notified in advance of all reprogrammings, except internal reprogrammings, and the Department is to take no financial action in anticipation of Congressional response. The Committee recommends the following reprogramming control points for fiscal year 2010:

- Fast Flux Test Reactor Facility Decontamination and Decommissioning;
- Gaseous Diffusion Plants;
- Small Sites; and
- West Valley Demonstration Project.

*Internal Reprogramming Authority.*—Headquarters Environmental Management may transfer up to \$2,000,000, one time, between accounts listed above to reduce health and safety risks, gain cost savings, or complete projects, as long as a program or project is not increased or decreased by more than \$2,000,000 in total during the fiscal year.

The reprogramming authority—either formal or internal—may not be used to initiate new programs or to change funding levels for programs specifically denied, limited, or increased by Congress in the act or report. The Committee on Appropriations in the House and Senate must be notified within 30 days after the use of the internal reprogramming authority.

*Fast Flux Test Reactor Facility Decontamination and Decommissioning.*—The Committee recommends \$7,652,000, the same as the request.

*Gaseous Diffusion Plants.*—The Committee recommends \$104,444,000, the same as the request.

*Small Sites.*—The Committee recommends \$82,233,000, an increase of \$14,886,000 above the request. An additional \$10,000,000 is provided to Moab, bringing the fiscal year 2010 total to \$40,671,000, and an additional \$4,886,000 is provided to continue ongoing surveillance and operation of groundwater treatment systems and completion of the decontamination and decommissioning of two reactor facilities at Brookhaven National Laboratory.

*West Valley Demonstration Project.*—The Committee recommends \$65,500,000, an increase of \$7,426,000 above the request, to maintain progress on cleanup.

#### URANIUM ENRICHMENT DECONTAMINATION AND DECOMMISSIONING FUND

Appropriations, 2009 .....	<sup>1</sup> \$925,503,000
Budget estimate, 2010 .....	359,377,000
Committee recommendation .....	588,322,000

<sup>1</sup> Includes emergency appropriations of \$390,000,000 under Public Law 111–5.

The Committee's recommendation is \$588,322,000, an increase of \$228,945,000 over the request to sustain cleanup activities at the Paducah, Kentucky Gaseous Diffusion plant consistent with fiscal year 2009 level of \$116,446,000 for cleanup. The Committee provides \$225,000,000 for East Tennessee Technology Park and \$246,876,000 for Portsmouth, both as requested. We note there is no request for reimbursement for Uranium/Thorium cleanup contracts, and therefore provide nothing in our recommendation.

The Committee did not adopt the administration's proposed \$200,000,000 tax on uranium fuel. The Committee is aware of the fact that over \$5,000,000,000 in available funding remains in the UED&D fund. If this administration is serious about this cleanup effort it should demonstrate it by increasing the funding requests, not through budgetary gimmicks.

#### SCIENCE

Appropriations, 2009 .....	<sup>1</sup> \$6,372,636,000
Budget estimate, 2010 .....	4,941,682,000
Committee recommendation .....	4,898,832,000

<sup>1</sup> Includes emergency appropriations of \$1,600,000,000 under Public Law 111–5.

The Committee recommends \$4,898,832,000 for the Office of Science. The Committee applauds the successes, which have been achieved when the Department of Energy has collaborated with the National Institutes of Health [NIH]. These successes include the human genome project, advances in bioinformatics, and breakthroughs in atomic resolution structural biology. The Committee strongly encourages the DOE Office of Science and the National Laboratories to reach out to the NIH to institutionalize senior level contacts with the goal of identifying opportunities for sustained collaboration in research and development. The Committee notes that long-lasting relationships are necessary to build the types of integrated collaborative programs that could bring about breakthroughs in biomedical imaging, systems biology, and other key areas of research. The Committee directs the Office of Science, in consultation with the NNSA, to review all radioactive materials held by the Department of Energy and to work with science, med-

ical, industrial and agricultural groups to ascertain if available inventories can be used in industrial or medical applications and how to improve the utilization of existing sources and avoid further production or importation of new sources. Finally, the Office of Science, working with all the relevant offices, is directed to make recommendations for investment in U.S. facilities including research reactors or accelerators that could be upgraded to provide domestic sources for medical and industrial applications.

#### HIGH ENERGY PHYSICS

The Committee recommends \$813,000,000 for High Energy Physics. The Committee questions the increased investment in Large Hadron Collider [LHC] support when the timing of the restart of the LHC is in doubt. The Committee urges the Office of Science and the LHC managers to improve communication on the status of the LHC.

#### NUCLEAR PHYSICS

The Committee recommends \$540,000,000 for Nuclear Physics. Within the funds provided, \$17,500,000 is for nuclear medicine medical application research. The Committee emphasizes its commitment to nuclear medicine medical application research at the Department of Energy. All of the added funds must be awarded competitively in one or more solicitation that includes all sources—universities, the private sector, and Government laboratories. Funding for nuclear medicine application research was previously within the Biological and Environmental Research program.

#### BIOLOGICAL AND ENVIRONMENTAL RESEARCH

The Committee recommends \$604,182,000 for Biological and Environmental Research. The Committee recognizes the international communities' reliance on the NNSA laboratories expertise in climate change modeling and continues to believe the NNSA laboratories are well equipped to develop and deploy a national system for science-based stewardship that combines advanced modeling, multi-scale monitoring, and impact analysis tools. These laboratories, with their experience in nuclear weapons nonproliferation and their unique capabilities across a wide range of technical resources are able to make a significant contribution in the development and implementation of a comprehensive climate research strategy. The Committee directs the Office of Science to continue to work closely with the NNSA laboratories on climate change modeling.

#### BASIC ENERGY SCIENCES

The Committee recommends \$1,653,500,000 for Basic Energy Sciences. Of these funds \$154,240,000 is provided for construction activities as requested in the budget. The remaining \$1,499,260,000 is for research. The Committee does not accept the proposed new break out of subaccounts within Basic Energy Sciences as proposed by the budget.

Within the research funds provided \$35,000,000 is for the Experimental Program to Stimulate Competitive Research [EPSCoR].



The EPSCoR program is currently funding energy research that will help reduce our dependence on foreign oil. EPSCoR States have significant energy resources, contain or are near national laboratories and already undertake research in areas of importance to the Department and Nation. In fact, 6 of the top 10 energy-producing States are EPSCoR States. In order to keep up with the increased national focus on energy, the Committee recommends that the limit of one Implementation Grant per EPSCoR State be removed and the cap on the maximum allowable award be increased to \$2,500,000.

Within the funding provided, \$15,000,000 is provided to develop a second target station at the Spallation Neutron Source. The Committee strongly encourages the Office of Science to fully fund all major items of equipment requested in the budget and provide full funding of facility operations within this account.

#### ADVANCED SCIENTIFIC COMPUTING RESEARCH

The Committee recommends \$399,000,000 for Advanced Scientific Computing Research. The Committee expects the Office of Science to continue to support joint research with the NNSA laboratories through the Institute for Advanced Architecture and Advanced Algorithms. Within the available funds, \$5,000,000 shall be provided to collaborate in a joint program to enhance the production of unconventional fossil energy using advanced simulation and visualization.

#### FUSION ENERGY SCIENCES

The Committee recommends \$416,000,000 for Fusion Energy Sciences.

#### SCIENCE LABORATORIES INFRASTRUCTURE

The Committee recommends \$133,600,000 to support infrastructure activities, the same as the budget request.

#### SAFEGUARDS AND SECURITY

The Committee recommends \$83,000,000 for Safeguards and Security activities, the same as the budget request. The program provides funding for physical security, information protection, and cyber security for the national laboratories and facilities of the Office of Science.

#### SCIENCE PROGRAM DIRECTION

The Committee recommends \$194,722,000 for the Office of Science Program Direction. The reduction from the budget request reflects the Committee's primary continued concern about the proposed large increase for field office personnel. The Committee supports the \$8,916,000 for the Office of Science and Technical Information.

#### SCIENCE WORKFORCE DEVELOPMENT

These initiatives support the mission of the Department's Workforce Development for Teachers and Scientists program. The Committee recommends \$20,678,000, the same as the budget request.

*Congressionally Directed Spending Items.*—The Committee includes \$41,150,000 for the following list of projects that provide for research, development, and demonstration of science technologies or programs. The Committee reminds recipients that statutory cost sharing requirements may apply to these projects.

#### CONGRESSIONALLY DIRECTED SCIENCE PROJECTS

Project title	Amount	Requestor
Advanced Manufacturing and Engineering Equipment .....	\$1,000,000	Senator Lugar
Alaska Climate Center .....	1,000,000	Senator Murkowski
Antibodies Research .....	3,000,000	Senators Dorgan, Conrad
Carbon Nanotube Technology Center [CANTEC] .....	1,000,000	Senator Inhofe
Center for Advanced Bio-Based Binders and Pollution Reduction Technologies at the University of Northern Iowa.	950,000	Senator Grassley
Center for Diagnostic Nanosystems .....	3,000,000	Senator Byrd
Center of Excellence and Hazardous Materials .....	750,000	Senators Bingaman, Tom Udall
Clean Energy Infrastructure Educational Initiative .....	500,000	Senator Brown
Climate Model Evaluation Program .....	1,800,000	Senator Shelby
Computing Capability .....	5,000,000	Senators Dorgan, Conrad
Development of Ultrafiltration Membrane-Separation Technology for Energy-Efficient Water Treatment and Desalination Process.	800,000	Senator Reid
Enhancement for the Intermountain Center for River Restoration and Rehabilitation ....	600,000	Senator Bennett
Environmental Quality Monitoring and Analysis .....	500,000	Senator Durbin
Fuel Cell Research, Brown University, RI .....	1,500,000	Senators Reed, Whitehouse
Functional MRI Research .....	1,200,000	Senator Leahy
Idaho Accelerator Center Production of Medical Isotopes .....	1,500,000	Senators Crapo, Risch
Kansas University Cancer Research Equipment .....	4,000,000	Senators Brown- back, Roberts
Marine Systems Energy/Environmental Sustainability Research .....	300,000	Senators Kennedy, Kerry
Martin County Microfiber Hydrogen Fuel Cell Technology Development .....	1,000,000	Senators Burr, Hagen
Material Science Smart Coatings .....	500,000	Senator Ben Nelson
Nanotechnology Initiative .....	750,000	Senators Dodd, Lie- berman
Nevada Water Resources Data, Modeling, and Visualization Center [CAVE] .....	500,000	Senator Reid
Performance Assessment Institute .....	1,000,000	Senator Reid
Pioneer Valley Life Science Institute Translational Biomedical Research .....	400,000	Senators Kennedy, Kerry
Renovation and Development of the LSU Nuclear Science Building .....	1,000,000	Senators Landrieu, Vitter
RNAi Research .....	300,000	Senators Kennedy, Kerry
Science Center Equipment and Energy Efficient LEED Technology .....	900,000	Senator Bennett
Smart Grid Communications Security Project .....	1,000,000	Senator Udall, Mark
SUU Science Center Energy Efficiency Modernization and Enhancement Project .....	1,000,000	Senator Bennett
Targeted Radiotherapy for Melanoma .....	300,000	Senators Kennedy, Kerry
Technology Transfer and Commercialization of Technologies at DOE Laboratories .....	750,000	Senator Bingaman
The New School Green Building .....	1,000,000	Senators Schumer, Gillibrand
USD Catalysis Group for Alternative Energy .....	1,100,000	Senator Johnson
Yttrium-90 Microspheres Research .....	1,250,000	Senator Murray

## ENERGY TRANSFORMATION ACCELERATION FUND

Appropriations, 2009 .....	<sup>1</sup> \$400,000,000
Budget estimate, 2010 .....	10,000,000
Committee recommendation .....	

<sup>1</sup> Includes emergency appropriations of \$400,000,000 under Public Law 111-5.

The Committee does not recommend the \$10,000,000 requested.

## NUCLEAR WASTE DISPOSAL

Appropriations, 2009 .....	\$145,390,000
Budget estimate, 2010 .....	98,400,000
Committee recommendation .....	98,400,000

The Committee recommends \$98,400,000, the same as the request. The Nuclear Waste Fund has a current balance of \$22,000,000,000 and generates annual interest of just over \$1,000,000,000 that is added to the corpus. The Committee believes that interest accrued, being more than five times the President's fiscal year 2010 budget proposal of \$196,800,000, is more than adequate to cover planned activities proposed in this budget request and is not aware of any specific strategy to execute the statutory obligations to manage both defense and nondefense material consistent with the Nuclear Waste Policy Act. Given the Administration's decision to terminate the Yucca Mountain repository program while developing disposal alternatives, the Committee expects the Secretary of Energy to suspend collection of payments to the Nuclear Waste Fund.

## INNOVATIVE TECHNOLOGY LOAN GUARANTEE PROGRAM

## ADMINISTRATIVE EXPENSES

## GROSS APPROPRIATION

Appropriations, 2009 .....	<sup>1</sup> \$6,484,880,000
Budget estimate, 2010 .....	1,543,000,000
Committee recommendation .....	43,000,000

<sup>1</sup> Includes emergency appropriations of \$6,000,000,000 under Public Law 111-5.

## OFFSETTING RECEIPTS

Appropriations, 2009 .....	-\$19,880,000
Budget estimate, 2010 .....	-1,543,000,000
Committee recommendation .....	-43,000,000

## NET APPROPRIATION

Appropriations, 2009 .....	\$6,465,000,000
Budget estimate, 2010 .....	1,500,000,000
Committee recommendation .....	

## ADVANCED TECHNOLOGY VEHICLES MANUFACTURING LOAN PROGRAM

Appropriations, 2009 .....	<sup>1</sup> \$7,520,000,000
Budget estimate, 2010 .....	20,000,000
Committee recommendation .....	20,000,000

<sup>1</sup> Includes emergency appropriations of \$7,510,000,000 under Public Law 110-329 and \$10,000,000 under Public Law 111-5.

The Committee recommends the \$20,000,000 requested.

## DEPARTMENTAL ADMINISTRATION

(GROSS)

Appropriations, 2009 .....	\$272,643,000
Budget estimate, 2010 .....	302,071,000
Committee recommendation .....	293,684,000

## (MISCELLANEOUS REVENUES)

Appropriations, 2009 .....	-\$117,317,000
Budget estimate, 2010 .....	-119,740,000
Committee recommendation .....	-119,740,000

## NET APPROPRIATION

Appropriations, 2009 .....	\$155,326,000
Budget estimate, 2010 .....	182,331,000
Committee recommendation .....	-173,944,000

The Committee recommends \$293,684,000 for Departmental Administration, which provides a net appropriation of \$173,944,000 in fiscal year 2010. The Departmental Administration account supports 10 Department-wide management organizations including administrative, human resources, financial, workforce diversity, congressional liaison, and program management functions.

The January 2009 Small Refineries Exemption Study issued by the Department of Energy was intended to determine whether small refineries faced a disproportionate economic hardship in meeting Renewable Fuel Standard [RFS] requirements beginning in 2011. The Committee understands the study contained inadequate small refinery input, did not assess the economic condition of the small refining sector, take into account regional factors or accurately project RFS compliance costs. Therefore, the Committee does not believe the study is complete, nor is the Department able to make the required determination at this time. In view of these deficiencies and the importance of the study, the Department is directed to reopen and reassess the Small Refineries Exemption Study by June 30, 2010. The Department is specifically directed to seek and invite comment from small refineries on the RFS exemption hardship question, assess RFS compliance impacts on small refinery utilization rates and profitability, evaluate the financial health and ability of small refineries to meet RFS requirements, study small refinery impacts and regional dynamics by PADD, and reassess the accuracy of small refinery compliance costs through the purchase of renewable fuel credits. Finally, the Committee notes that the 2009 study does not estimate the price of tradable fuel credits, but the Committee is aware that from 2008 to 2009, price has increased nearly threefold. The Committee expects the Department to undertake an economic review to estimate the actual economic impact of the RFS on small refineries on a regional basis.

## OFFICE OF THE INSPECTOR GENERAL

Appropriations, 2009 .....	<sup>1</sup> \$66,927,000
Budget estimate, 2010 .....	51,445,000
Committee recommendation .....	51,927,000

<sup>1</sup> Includes emergency appropriations of \$15,000,000 under Public Law 111-5.

The Committee recommends \$51,927,000, the same as the request.

## ATOMIC ENERGY DEFENSE ACTIVITIES

### NATIONAL NUCLEAR SECURITY ADMINISTRATION

#### WEAPONS ACTIVITIES

Appropriations, 2009 .....	\$6,410,000,000
Budget estimate, 2010 .....	6,384,431,000
Committee recommendation .....	6,468,267,000

The Committee recommends \$6,468,267,000 for Nation Nuclear Security Administration Weapons Activities.

#### DIRECTED STOCKPILE WORK

*Life Extension Programs.*—The Committee recommends \$209,196,000 for the Life Extension Program, the same as the budget request.

*Stockpile Systems.*—The Committee recommends \$390,300,000, the same as the request.

*Weapons Dismantlement.*—The Committee recommends \$84,100,000, the same as the request. The funding for the Pit Disassembly and Conversion Facility has been moved from this program to the Readiness in Technical Base and Facilities (Construction) program.

*Stockpile Services.*—The Committee recommends \$844,055,000. The Committee recommends an increase of \$30,000,000 to support experimental activities at the Nevada Test Site needed to support subcritical experiments in the Science and Advanced Simulation and Computing Campaigns. No funding is provided to support the transition of the tritium design and gas transfer R&D mission as proposed in the Complex Transformation plan. An independent study found there was no compelling economic or programmatic justification for this move and the transfer fails to deliver any amount of budgetary savings. In fact, NNSA's preferred alternative would cost an additional \$86,000,000 above the no action alternative. The NNSA has a poor record of transferring mission responsibilities without considerable disruption to the mission. Until the NNSA is able to provide both an economic or programmatic justification, the Committee will not support the transfer of tritium design and gas transfer R&D missions.

#### CAMPAIGNS

The campaigns support scientific research, experimental activities and advanced computation, which make up the core of the science-based stockpile stewardship program. This program has enabled the U.S. Government to ensure the safety, reliability, and security of our nuclear weapons stockpile without underground nuclear testing for the past 15 years. However, due to declining investment in the core scientific capabilities, a Task Force Report by the Defense Science Board found the lack of funding in the Advanced Computing program will not allow the NNSA to meet its nuclear weapons milestones. At the same time, the existing stockpile continues to age presenting new scientific challenges as re-

quired modifications move each system further and further away from its test validated state, further taxing the scientific capacity of the complex to accurately predict the expected margins and reliability of the aging stockpile. The Committee does not believe this level of funding is adequate to support modernization of the complex including critical investment in infrastructure and scientific capabilities. The Committee recommends additional funding for both categories. The Committee recommends \$1,589,230,000 for NNSA Campaigns, which is \$29,500,000 above the request, but \$34,120,000 below current year levels.

*Science Campaign.*—The Committee recommends \$319,690,000, an increase of \$3,000,000 which is added to Primary Assessment Technologies.

*Engineering Campaign.*—The Committee recommends \$150,000,000, consistent with the budget request.

*Inertial Confinement Fusion Ignition and High Yield Campaign.*—The Committee provides \$453,415,000, an increase of \$16,500,000 to restore operation to current year levels for Sandia's Z machine and the University of Rochester Omega facility. The Committee is frustrated with NNSA's inability to provide a balanced program to support full operations at each of the facilities which are each critical to understanding the complex high energy density science. The Committee provides \$54,000,000 to Sandia to operate full shift operations and \$55,000,000 to the University of Rochester to support Omega operations.

The Committee understands the NNSA is preparing to establish an advisory board for the National Ignition Facility experimental program, as recommended by the JASONS, and is considering the establishment of a national ICF/HED advisory committee. The Committee strongly supports the creation of an independent advisory board over the national ICF science and HED physics research. This panel should review the program strategy to ensure the experimental program appropriately manages the facilities and make recommendations on the appropriate scientific and technical aspects of the experimental program.

The NNSA is to be commended on completing construction of the NIF and the Committee encourages the NNSA to focus on the goal of ignition, for which this facility was built.

The Committee is concerned by the sole-source award of target development, which is inconsistent with its own policy guidelines. The Committee recognizes that competition will drive innovation and savings into the program. The Committee expects the NNSA to ensure that all future target fabrication solicitations be competitively bid.

*Advanced Simulation and Computing.*—The Committee recommends \$566,125,000 for the Advanced Simulation and Computing [ASC] Campaign, an increase of \$10,000,000. The Committee is frustrated with the continued inconsistency in funding requests between the Office of Science and the NNSA ASC program and believes the Department has not done enough to integrate the cooperation and research and development between the two programs.

The Defense Science Board produced a report on Advanced Computing in March 2009. The report outlined five primary conclu-

sions, which this Committee is in full agreement: (1) The advanced simulation and computing program is the "principal tool" for assuring the safety and surety of the nuclear deterrent without underground nuclear testing; (2) The NNSA advanced computing program has enabled the United States to be the leader in high performance computing; (3) This program has also advanced the science and development of advanced computing which has broad applications in national security, energy and the environmental research within the Department of Energy, but other agencies and commercial enterprise as well; (4) The "ASC program needs significantly more resources in the future to achieve the goals stated in its roadmaps and planning documents. At currently projected levels of funding it will not meet its nuclear weapons milestones in a timely manner and perhaps not at all."; and (5) The program requires additional resources if the program hopes to achieve the next level of high performance computing capability. The Committee expects the Department to provide sufficient resources to address the concerns raised by the Advanced Computing Task Force report and improve its cooperation between other offices within the Department of Energy to apply these advanced computational, visualization and simulation capabilities to solving other complex science and energy applications. This point was specifically endorsed by the Defense Science Board Report as well.

The Committee also urges the Department to continue to support the development and collaboration with the Office of Science in development of advanced algorithms and architectures in high performance computing systems.

The Committee has provided an additional \$10,000,000 in this program of which \$5,000,000 shall be applied to a joint program with the Office of Fossil Energy and the Office of Science to work in collaboration with universities and industry to improve our capacity to produce domestic unconventional oil and gas resources and minimize environmental impact through by utilizing high performance computing capabilities.

As the demands of stockpile stewardship continue to push the limits of parallel computing, power consumption is becoming untenable. While the industry focuses on power-efficient processor technology, there are additional opportunities to increase computational performance and optimize energy savings through improvement in storage systems. The ASC program is directed to allocate \$5,000,000 to explore aspects of cost-effective, power-efficient storage systems.

*Readiness Campaign.*—The Committee recommends \$100,000,000 for the Readiness Campaign, consistent with the budget request.

#### READINESS IN TECHNICAL BASE AND FACILITIES

The Committee recommends \$1,848,870,000, an increase of \$112,522,000 above the request. The funding is provided to fill significant gaps in infrastructure development at the NNSA facilities. The Committee has restored funding to support the design effort and to minimize job losses associated with the Chemistry and Metallurgy Research Replacement facility at Los Alamos and the Uranium Process Facility at Y-12. The facilities replace aging facilities

which pose a serious threat to worker health and safety and have been recommended to be closed by the Defense Nuclear Facilities Safety Board. The Committee urges the NNSA to continue the design efforts to develop appropriately sized facilities to support the mission needs.

The Committee has also restored funding for the LANSCE Refurbishment project initiated last year by Congress. This facility is the cornerstone of scientific research at Los Alamos serving between 500–600 users per year. This facility still supports a wide range of experiments in both open science and classified work in support of the stockpile stewardship mission. The investment in this facility upgrade is one of the most cost-effect science investments and will support new applications to support advanced materials research.

The Committee has also rescinded the prior year balances of \$42,100,000 for the High Explosive Pressing Facility that was cancelled in this budget upgrade.

The Committee recommends \$1,519,966,000, for the Readiness in Technical Base and Facilities account. This funding supports the operations and maintenance of the NNSA laboratories and production facilities, equipment purchases and personnel. Of these funds:

*Operations of Facilities.*—The Committee recommends \$1,329,303,000.

*Program Readiness.*—The Committee recommends the requested amount of \$73,021,000.

*Material Recycle and Recovery.*—The Committee recommends the requested amount of \$69,542,000.

*Containers.*—The Committee recommends the requested amount of \$23,392,000.

*Storage.*—The Committee recommends the requested amount of \$24,708,000.

*Construction.*—The Committee recommends \$328,904,000, an increase of \$125,522,000. The Committee provided this funding to make key investment in laboratory and plant infrastructure.

*Project 10-D-501, Nuclear Facilities Risk Reduction, Y-12, Oak Ridge, Tennessee.*—The Committee provides \$12,500,000, as requested to support critical facility upgrades.

*Project 99-D-141, Pit Disassembly and Conversion Facility SRS.*—The Committee recommends \$30,321,000, as requested for this facility.

*Project 09-D-007, LANSCE Refurbishment Project, Los Alamos, New Mexico.*—The Committee recommends \$30,000,000 to refurbish the LANSCE facility.

*Project 09-D-404, Test capabilities revitalization II, Sandia National Laboratories, Albuquerque, New Mexico.*—The Committee recommends \$13,000,000.

*Project 08-D-801, High Pressure Fire Loop, Pantex, Texas.*—The Committee recommends \$31,190,000 as requested.

*Project 06-D-140, Project Engineering Design [PED], Various Locations.*—The Committee recommends \$16,200,000. The project account supports ongoing design efforts for the TA-55 Reinvestment Project, Phase II at \$5,200,000, and the Radioactive Liquid Waste Treatment Facility at \$11,000,000.

*Project 06-D-141, Project Engineering Design [PED], Uranium Process Facility, Y-12, Oak Ridge, Tennessee.*—The Committee rec-



ommends \$94,000,000 to sustain the design efforts of this facility and prevent layoffs of critical design staff. The Committee has separated the UPF project from the other PED projects to improve oversight of this project.

*Project 06-D-402, NTS replace Fire Stations 1&2 Nevada Test Site, Nevada.*—The Committee recommends \$1,473,000, as requested.

*Project 04-D-125, Chemistry and Metallurgy Facility Replacement Project, Los Alamos National Laboratory, New Mexico.*—The Committee recommends \$98,000,000 to keep the Radiological laboratory completion and equipment installation on schedule and to sustain design efforts of the nuclear facility.

*Project 04-D-128, TA-18, Criticality Experiments Facility, Los Alamos National Laboratory, Nevada Test Site, Nevada.*—The Committee recommends \$1,500,000, the same as the budget request.

#### SECURE TRANSPORTATION ASSET

The Committee recommendation for the Secure Transportation Asset program is \$234,915,000, the same as the budget request.

#### NUCLEAR WEAPONS INCIDENT RESPONSE

The Committee recommends full funding of the nuclear weapons incident response program. The Committee provides \$221,936,000 as requested.

#### FACILITIES AND INFRASTRUCTURE RECAPITALIZATION

The Committee provides \$154,922,000 for Facilities and Infrastructure Recapitalization activities, consistent with the budget request. This program was developed to reduce the backlog in deferred maintenance of aging infrastructure facilities throughout the complex.

#### SITE STEWARDSHIP

The Committee recommends \$61,288,000 a reduction of \$29,086,000. The Committee is supportive of the materials consolidation mission. The Committee has not provided funding for the Stewardship planning initiative as the mission priorities are poorly defined. The Committee has attempted to restore mission critical investments in both science and infrastructure and is unable to provide additional funding for the proposed Stewardship planning activities. The Committee urges the NNSA to work with the Federal Energy Management Program, including independent third party energy providers, the National Renewable Energy Lab, and universities to develop a range of solutions in meeting the Federal renewable energy goals. The Committee would encourage the Administration to use ARRA funds for this project as long as those funds will be able to provide 100 percent of the project and will not create any future funding liability for this program.

#### SAFEGUARDS AND SECURITY

The Committee recommendation for the Safeguards and Security Program is \$871,555,000, as requested.

*Defense Nuclear Security Operations and Maintenance.*—The Committee recommends the requested level of \$700,044,000.

*Construction.*—The Committee recommends \$49,000,000, the same as the budget request.

*Project 10-D-701 Security Improvement Project Y-12 Plant, Oak Ridge, Tennessee.*—The Committee recommends full funding of \$49,000,000 for this project.

*Cybersecurity.*—The Committee recommends the full request of \$122,511,000, which is \$1,225,000 above the current year levels. The Committee is concerned about increasing attempts to penetrate NNSA firewalls and urges the NNSA to take this threat seriously.

*Use of Prior Year Balances.*—The Committee recommends the use of \$42,100,000 of prior year balances from unexpended balances of the cancelled High Explosive Pressing Facility at Pantex.

#### DEFENSE NUCLEAR NONPROLIFERATION

Appropriations, 2009 .....	\$1,537,350,000
Budget estimate, 2010 .....	2,136,709,000
Committee recommendation .....	2,136,709,000

The Committee recommends \$2,136,709,000. The Committee has provided full funding for the Mixed Oxide Fuel Fabrication Facility to support the nonproliferation mission of destroying excess plutonium in United States and Russian stockpiles. The Committee is aware that the administration is preparing to sign an agreement with Russia accepting the use of fast reactors to burn plutonium as their preferred path for disposal. The Committee is aware that the administration intends to provide \$400,000,000 in funding to support the Russian effort consistent with previous U.S. policy commitments. However, the budget request did not include the estimated \$100,000,000 in funding needed to fulfill those commitments in this fiscal year and this Committee does not have the resources to cover this shortfall. In addition, the Committee does not include any of the funding requested to support the denuclearization work in North Korea. The Committee is supportive of this work, but until relations improve, the Committee has applied this funding to improving the U.S. capability to develop advanced nuclear nonproliferation and detection technologies.

#### NONPROLIFERATION AND VERIFICATION RESEARCH AND DEVELOPMENT

The Committee recommends \$337,300,000, an increase of \$40,000,000 to support expanded investment in developing advanced nuclear detection technologies. Within the available funds, the Committee provides \$15,000,000 to support the Integrated University Program consistent with the section 313 of Public Law 111-8. The program is directed to cooperate with the Office of Nonproliferation and International Security in developing education and research funding priorities for advanced nuclear safeguards research.

Also, within available funds, the Committee provides \$6,000,000 for NNSA laboratories for the purpose of applying their expertise and advanced computational, modeling and simulation capabilities to the Nation's space situational awareness requirements. NNSA

should execute this effort in collaboration with the Air Force's efforts to ensure the freedom of U.S. space operations and counter emerging threats to space operations.

#### NONPROLIFERATION AND INTERNATIONAL SECURITY

The Committee recommends \$187,202,000 a reduction of \$20,000,000. The reduction is tied to \$40,000,000 in funding requested for North Korea. If, in the future, North Korea renews its commitment to denuclearization; the Committee would be willing to work with the NNSA to provide additional funding for that mission.

#### INTERNATIONAL NUCLEAR MATERIALS PROTECTION AND COOPERATION

The Committee recommends \$522,300,000 as requested. The Committee has provided strong support to this program over the past decade and believes this is an important mission. However, the Committee wants to ensure that the U.S. investments in Russian materials control and security are maintained. The Committee expects the Russian Government to share in the operations and maintenance responsibilities. The Committee intends to closely follow this matter to ensure Russia fulfills its obligations and United States resources are not wasted.

#### ELIMINATION OF WEAPONS-GRADE PLUTONIUM PRODUCTION

The Committee recommends \$24,507,000 as requested by the Administration.

#### FISSILE MATERIALS DISPOSITION

The Committee recommends \$701,900,000 as requested to support the plutonium disposition program and construction projects.

*U.S. Surplus Fissile Materials Disposition.*—The Committee provides for the full request of \$126,662,000, including \$90,896,000 for the U.S. plutonium disposition and \$34,691,000 as requested for the U.S. uranium disposition program.

*Construction.*—The Committee recommends \$574,238,000 to support construction as requested.

*Project 99-D-143, Mixed Oxide Fuel Fabrication Facility, Savannah River, South Carolina.*—The Committee recommends \$504,238 as requested.

*Project 99-D-141-02, Waste Solidification Building, Savannah River South Carolina.*—The Committee recommends full funding of \$70,000,000 for this project.

*Russian Surplus Materials Disposition.*—The Committee recommends \$1,000,000, as requested. If President Obama and Russian President Medvedev sign a plutonium disposition strategy, this budget does not provide adequate resources to fulfill the U.S. requirements under that agreement and additional resources must be found.

#### GLOBAL THREAT REDUCTION INITIATIVE

The Committee recommends \$333,500,000. The Committee recommendation does not include funding requested for North Korea in this program. The Committee recognizes the shortfall in supplies

of isotope Molybdenum-99 for the use in medical treatments and provides \$20,000,000 to advance the creation of a domestic supply of this isotope. The Committee recommends that not less than \$10,000,000 within available funds be made available to undertake a full inventory of all Department of Energy and NNSA nuclear material to determine if there are materials that have value and can be reused in other mission or commercial applications. These funds are to be shared with the relevant programs across the Department to support the Committee's direction. In February 2009, the Department of Energy Inspector General released a report that found that DOE could not account for 37 percent of the quantities or location of nuclear materials that had been loaned or leased for research or medical purposes. This inventory is managed by the Department of Energy and Nuclear Regulatory Commission through the Nuclear Materials Management and Safeguards Systems. In addition to the lack of rigorous management of existing inventories, the Committee is concerned that the new nuclear sources are being created without consideration of how these will ultimately be tracked, stored and safely disposed. This issue was addressed during March 2009 International Atomic Energy Agency workshop, which urged a more comprehensive "cradle to grave" management strategy of medical and industrial seal radioactive sources. Using the funds provided, the Committee expects this office to work with the Office of Science, the Office of Nuclear Energy, all of the relevant Department of Energy Laboratories, the Nuclear Regulatory Commission and other relevant Federal agencies, academia and industry to identify the location, status and proposed disposal pathway for all known radioactive source materials and which Federal agency has responsibility for this material. The Department of Energy is directed to implement the recommendations made by the Inspector General [DOE/IG-0813] and update the Nuclear Materials Management and Safeguards Systems and report to the Committee on Appropriations on the status of any inconsistency in that report or unaccounted materials.

#### NAVAL REACTORS

Appropriations, 2009 .....	\$828,054,000
Budget estimate, 2010 .....	1,003,133,000
Committee recommendation .....	973,133,000

The Committee provides \$973,133,000 for the Naval Reactor program to provide the U.S. Navy with nuclear propulsion plants that are capable of responding to the challenges of 21st century security concerns. The Committee recommends \$905,533,000 for operations and maintenance. The Committee is aware that additional funding has been provided to offset pension shortfalls in this program, but is concerned that additional funding may be needed. The Committee directs the Secretary to utilize authorities provided in section 311 to prevent any reduction in mission funding.

*Construction.*—The Committee recommends \$30,000,000 as requested for the various construction projects proposed in the budget request.

## OFFICE OF THE ADMINISTRATOR

Appropriations, 2009 .....	\$439,190,000
Budget estimate, 2010 .....	420,754,000
Committee recommendation .....	420,754,000

The Committee recommends \$420,754,000 of the Office of the Administrator.

## ENVIRONMENTAL AND OTHER DEFENSE ACTIVITIES

## DEFENSE ENVIRONMENTAL CLEANUP

Appropriations, 2009 .....	<sup>1</sup> \$10,784,250,000
Budget estimate, 2010 .....	5,495,831,000
Committee recommendation .....	5,763,856,000

<sup>1</sup> Includes emergency appropriations of \$5,127,000,000 under Public Law 111-5.

The Committee recommendation for Defense Environmental Cleanup is \$5,763,856,000. Within the total provided, the Department is directed to fund the Hazardous Waste Worker Training Program [HAZWOPER] at \$10,000,000.

The Committee had hoped with the new administration that the Cleanup budget submittal would—for the first time in years—request sufficient funding to be legally compliant. Sadly, it appears that the administration decided to lean on the Recovery Act funding to meet many of its fiscal year 2010 compliance milestones. The result is that it has deliberately underfunded the base program that should have requested funds to meet those fiscal year 2010 milestones. Next year, rather than parading out expensive new initiatives, the administration should consider meeting its basic legal, moral, and human commitments to clean up nuclear research and cold war sites.

The Committee is aware of the potential for significant shortfalls in this budget because the program may have to cover defined-benefit pension contributions later this year. We have included a general provision that will permit the Secretary to take steps to address the programmatic shortfalls that could occur once the impact of the pension contributions becomes clearer at the end of the calendar year.

*Reprogramming Control Levels.*—In fiscal year 2010, the Environmental Management program may transfer funding between operating expense-funded projects within the controls listed below using guidance contained in the Department's budget execution manual [DOE M 135.1-1A, Chapter IV]. All capital construction line item projects remain separate controls from the operating projects. The Committees on Appropriations in the House and Senate must be formally notified in advance of all reprogrammings, except internal reprogrammings, and the Department is to take no financial action in anticipation of a congressional response. The Committee recommends the following reprogramming control points for fiscal year 2010:

- Closure sites;
- Hanford site;
- Idaho National Laboratory;
- NNSA sites;
- Oak Ridge Reservation;

- Office of River Protection;
- Savannah River site;
- Waste Isolation Pilot Plant;
- Program Direction;
- Program Support;
- Technology Development and Deployment;
- Safeguards and Security; and
- All capital construction line items, regardless of site.

*Internal Reprogramming Authority.*—The new reprogramming control points above obviates, in most cases, the need for internal reprogramming authority. However, at the few sites to which the internal reprogramming statute still applies, Environmental Management site managers may transfer up to \$5,000,000, one time, between accounts listed above to reduce health and safety risks, gain cost savings, or complete projects, as long as a program or project is not increased or decreased by more than \$5,000,000 in total during the fiscal year.

The reprogramming authority—either formal or internal—may not be used to initiate new programs or to change funding levels for programs specifically denied, limited, or increased by Congress in the act or report. The Committee on Appropriations in the House and Senate must be notified within 30 days after the use of the internal reprogramming authority.

*Closure Sites.*—The Committee recommends \$41,468,000, the same as the request.

*Hanford Site.*—The Committee recommends \$1,023,080,000. An additional \$53,000,000 is provided for characterization of groundwater, waste sites, and preparation of remedial investigations and feasibility studies for the Central Plateau, all aimed at completing CERCLA remedial decisions and continuing Central Plateau clean-up in the 2012–2013 timeframe. Another \$27,000,000 of the increase is for continued treatment of Mixed Low Level Waste, disposal of Low Level Waste and retrieval and processing of Transuranic Waste. Finally, \$40,000,000 is provided to support sludge treatment for the K-Basins sludge. The Committee understands the Department's continued support of the B-Reactor Museum and the Hazardous Materials Management and Emergency Response [HAMMER] facilities, which are provided for within available funds.

*Idaho National Laboratory.*—The Committee recommends \$470,168,000, an increase of \$64,000,000 to the request, all for Soil and Groundwater Remediation.

*NNSA Sites.*—The Committee recommends \$291,624,000, an increase of \$15,000,000 over the request. The additional \$15,000,000 is for Los Alamos National Laboratory to place two regional groundwater characterization wells and complete a Field Investigation and subsequent Report of Materials Disposal Area AB to maintain regulatory compliance.

*Oak Ridge Reservation.*—The Committee recommends \$153,768,000, the same as the request.

*Office of River Protection.*—The Committee recommends \$1,098,000,000, the same as the request. The Waste Treatment and Immobilization Plant is funded at \$690,000,000, and is considered

a single line-item construction project. Funding may be moved between subprojects.

*Savannah River Site.*—The Committee recommends \$1,242,974,000, an increase of \$33,025,000 above the request. The increase is applied to the Soil and Groundwater Remediation project, which was unfunded in the request.

*Waste Isolation Pilot Plant.*—The Committee recommends \$235,337,000. This recommendation includes funding for Carlsbad educational support, infrastructure improvements resulting from operations at WIPP and for construction of the WIPP digital records center, activities the program found meritorious enough to support in fiscal year 2009.

*Program Direction.*—The Committee recommends \$355,000,000, the same as the request. The Committee recognizes and supports the need for more Federal employees to manage the cleanup contracts. However, the fiscal year 2010 request includes 52 new hires at headquarters (+17 percent), which is more than half the number of new hires at all the field offices combined (+97, +9.3 percent). Cleanup work is done in the field, where the cleanup contracts are executed, not at headquarters. The program would be well advised to constrain the number of Headquarters new hires.

*Program Support.*—The Committee recommends \$34,000,000, the same as the request.

*Technology Development and Deployment.*—The Committee recommends \$55,000,000, the same as the request. This program languished for years without support, or even recognition, of Environmental Management's long-term mission. The new administration seems to be taking a fresh look at the need for break-through technologies that can, as the National Research Council's March 2, 2009 report highlights, permit this program to be completed safely, cost-effectively, and expeditiously.

The Committee supports the Technology Development and Deployment program's involvement this year with the Office of River Protection, whose budget includes \$50,000,000 to advance solutions for the treatment of radioactive waste including pre-treatment processes, tank structural integrity, and advanced retrieval technologies.

*Safeguards and Security.*—The Committee recommends \$296,437,000, a total of \$17,000,000 above the request. The increase is primarily to avoid workforce impacts where prior year funding may no longer be available and to provide for security investigations for field personnel, reflecting a change in Departmental practice.

*Federal Contribution to Uranium Enrichment Decontamination and Decommissioning Fund.*—The Committee recommends \$463,000,000, the same as the request.

*Congressionally Directed Spending Items.*—The Committee includes \$4,000,000 for the following list of projects that provide for research, development, and demonstration of defense environmental cleanup technologies or programs. The Committee reminds recipients that statutory cost sharing requirements may apply to these projects.

## CONGRESSIONALLY DIRECTED DEFENSE ENVIRONMENTAL CLEANUP PROJECTS

Project title	Amount	Requestor
Characteristics and Cleanup of the U.S. Nuclear Legacy .....	\$4,000,000	Senator Cochran

## OTHER DEFENSE ACTIVITIES

Appropriations, 2009 .....	\$1,314,063,000
Budget estimate, 2010 .....	852,468,000
Committee recommendation .....	854,468,000

The Committee recommendation is \$854,468,000, a decrease of \$461,595,000 from current year levels reflecting the shift for the Mixed Oxide Fuel Fabrication Facility from this program to the Office of Nuclear Nonproliferation. The recommended level is consistent with the budget request.

*Health, Safety and Security.*—The Committee recommends \$449,882,000, as requested.

*Office of Legacy Management.*—The Committee recommends \$189,802,000 as requested.

*Nuclear Energy.*—The Committee recommends \$83,358,000 for Idaho infrastructure for sitewide safeguards and security, the same as the request.

*Defense-related Administrative Support.*—The Committee recommends \$122,982,000, the same as the request.

*Office of Hearings and Appeals.*—The Committee recommends \$6,444,000, as requested.

*Congressionally Directed Spending Items.*—The Committee includes \$2,000,000 for the following list of projects of Other Defense Activities. The Committee reminds recipients that statutory cost sharing requirements may apply to these projects.

## CONGRESSIONALLY DIRECTED OTHER DEFENSE ACTIVITIES PROJECTS

Project title	Amount	Requestor
Burlington Atomic Energy Commission Plant [BAECP] and Ames Laboratory Former Workers Medical Surveillance Programs [FWP].	\$1,000,000	Senator Harkin
Medical Monitoring at Paducah, KY, Portsmouth, OH, and Oak Ridge, TN .....	\$1,000,000	Senator McConnell

## DEFENSE NUCLEAR WASTE DISPOSAL

Appropriations, 2009 .....	\$143,000,000
Budget estimate, 2010 .....	98,400,000
Committee recommendation .....	98,400,000

The Committee recommends \$98,400,000 for Defense Nuclear Waste Disposal activities, the same as the request.

## POWER MARKETING ADMINISTRATIONS

## BONNEVILLE POWER ADMINISTRATION

The Bonneville Power Administration is the Department of Energy's marketing agency for electric power in the Pacific Northwest. Bonneville provides electricity to a 300,000 square mile service area in the Columbia River drainage basin. Bonneville markets the power from Federal hydropower projects in the Northwest, as well as power from non-Federal generating facilities in the region. Bon-



neville also exchanges and markets surplus power with Canada and California. The Committee recommends no new borrowing authority for BPA during fiscal year 2010.

OPERATION AND MAINTENANCE, SOUTHEASTERN POWER  
ADMINISTRATION

Appropriations, 2009 .....	\$7,420,000
Budget estimate, 2010 .....	8,638,000
Committee recommendation .....	8,638,000

For the Southeastern Power Administration, the Committee recommends \$8,638,000, the same as the budget request.

OPERATION AND MAINTENANCE, SOUTHWESTERN POWER  
ADMINISTRATION

Appropriations, 2009 .....	\$28,414,000
Budget estimate, 2010 .....	44,944,000
Committee recommendation .....	44,944,000

For the Southwestern Power Administration, the Committee recommends \$44,944,000, the same as the budget request.

CONSTRUCTION, REHABILITATION, OPERATION AND MAINTENANCE,  
WESTERN AREA POWER ADMINISTRATION

Appropriations, 2009 .....	<sup>1</sup> \$228,346,000
Budget estimate, 2010 .....	256,711,000
Committee recommendation .....	256,711,000

<sup>1</sup> Includes emergency appropriations of \$10,000,000 under Public Law 111-5.

For the Western Area Power Administration, the Committee recommends \$256,711,000, the same as the budget request.

In this and subsequent fiscal years, the Committee recommends adopting the proposal presented in the President's budget request to reclassify from mandatory to discretionary those power receipts associated with the repayment of Western's annual expenses in this appropriations account. Such receipts will now be credited to this account as discretionary offsetting collections available for the sole purpose of funding the annual expenses of Program Direction and Operations and Maintenance (but excluding Purchase Power and Wheeling) of this account. This change does not convert this account into a revolving fund, since the Committee must specify a dollar limit on this activity in annual appropriations acts. For fiscal year 2010, the Committee recommends that no more than \$147,530,000 be credited to this account for this purpose.

The Committee directs the Western Area Power Administration to continue to collaborate with its firm power customers to develop annual work plans and accept funds advanced by customers to the extent such customers deem funds to be available, pursuant to its existing authorities.

For fiscal year 2010, the Committee supports a total program level for this account of \$899,317,000, which includes \$104,971,000 for Construction and Rehabilitation, \$57,159,000 for Operations and Maintenance, \$548,847,000 for Purchase Power and Wheeling, and \$180,756,000 for Program Direction. The Committee recommends \$7,584,000 for the Utah Reclamation Mitigation and Conservation.

Offsetting collections total \$501,216,000, consisting of \$147,530,000 for Western's annual expenses, \$349,807,000 for Purchase Power and Wheeling, and \$3,879,000 from the Colorado River Dam Fund (as authorized in Public Law 98-381).

#### FALCON AND AMISTAD OPERATING AND MAINTENANCE FUND

Appropriations, 2009 .....	\$2,959,000
Budget estimate, 2010 .....	2,568,000
Committee recommendation .....	2,568,000

The Falcon Dam and Amistad Dam on the Rio Grande River generate power through hydroelectric facilities and sell this power to public utilities through the Western Power Administration. This fund, created in the Foreign Relations Authorization Act for Fiscal Years 1994 and 1995, defrays the costs of operation, maintenance, and emergency activities and is administered by the Western Area Power Administration. For the Falcon and Amistad Operating and Maintenance Fund, the Committee recommends \$2,568,000 the same as the request.

#### FEDERAL ENERGY REGULATORY COMMISSION

##### SALARIES AND EXPENSES

Appropriations, 2009 .....	\$273,400,000
Budget estimate, 2010 .....	298,000,000
Committee recommendation .....	298,000,000

##### REVENUES APPLIED

Appropriations, 2009 .....	-\$273,400,000
Budget estimate, 2010 .....	- 298,000,000
Committee recommendation .....	- 298,000,000

# DEPARTMENT OF ENERGY

[In thousands of dollars]

	Enacted	Budget estimate	Committee recommendation	Committee recommendation compared to—	
				Enacted	Budget estimate
ENERGY EFFICIENCY AND RENEWABLE ENERGY					
Energy Efficiency and Renewable Energy RDD&D:					
Hydrogen Technology .....	168,960	.....	190,000	+ 21,040	+ 190,000
Emergency appropriation (Public Law 111–5) .....	43,400	.....	.....	– 43,400	.....
Fuel cell technologies .....	.....	68,213	.....	.....	– 68,213
Biomass and Biorefinery Systems R&D .....	217,000	235,000	235,000	+ 18,000	.....
Emergency appropriation (Public Law 111–5) .....	786,500	.....	.....	– 786,500	.....
Solar energy .....	175,000	320,000	255,000	+ 80,000	– 65,000
Wind energy .....	55,000	75,000	85,000	+ 30,000	+ 10,000
Emergency appropriation (Public Law 111–5) .....	118,000	.....	.....	– 118,000	.....
Geothermal technology .....	44,000	50,000	50,000	+ 6,000	.....
Emergency appropriation (Public Law 111–5) .....	400,000	.....	.....	– 400,000	.....
Water Power .....	40,000	30,000	60,000	+ 20,000	+ 30,000
Vehicle technologies .....	273,238	333,302	323,302	+ 50,064	– 10,000
Building technologies .....	140,000	237,698	202,698	+ 62,698	– 35,000
Industrial technologies .....	90,000	100,000	100,000	+ 10,000	.....
Federal energy management program .....	22,000	32,272	32,272	+ 10,272	.....
RE-ENERGYSE (Regaining our energy science and engineering edge) .....	.....	115,000	.....	.....	– 115,000
Facilities and infrastructure:					
National Renewable Energy Laboratory [NREL] .....	22,000	19,000	19,000	– 3,000	.....
Construction:					
10–EE–01 South table mountain ingress/egress and traffic capacity upgrades, National Renewable Energy Laboratory, Golden, CO .....	.....	44,000	44,000	+ 44,000	.....
08–EE–02 South-table mountain site infrastructure development, National Renewable Energy Laboratory, Golden, CO .....	13,000	.....	.....	– 13,000	.....
08–EE–01 Energy systems integration facility, National Renewal Energy Laboratory, Golden, CO .....	41,000	.....	.....	– 41,000	.....
07–EE–01 Integrated Biorefinery research facility, National Renewable Energy Laboratory, Golden, CO (emergency appropriation Public Law 111–5) .....	13,500	.....	.....	– 13,500	.....

06-EE-01 Research support facility project, National Renewable Energy Laboratory, Golden, CO (emergency appropriation Public Law 111-5) .....	68,000			- 68,000	
Subtotal, Construction .....	135,500	44,000	44,000	- 91,500	
Subtotal, Facilities and infrastructure .....	157,500	63,000	63,000	- 94,500	
Advanced battery manufacturing:					
Emergency appropriation Public Law 111-5 .....	2,000,000			- 2,000,000	
Alternative fueled vehicles pilot grant program:					
Emergency appropriation Public Law 111-5 .....	300,000			- 300,000	
Transportation electrification:					
Emergency appropriation Public Law 111-5 .....	400,000			- 400,000	
Energy efficient appliance rebate program:					
Emergency appropriation Public Law 111-5 .....	300,000			- 300,000	
Information and communication efficiency:					
Emergency appropriation Public Law 111-5 .....	50,000			- 50,000	
Program direction:	127,620	238,117	152,620	+ 25,000	- 85,497
Emergency appropriation Public Law 111-5 .....	50,000			- 50,000	
Program support:	18,157	120,000	72,000	+ 53,843	- 48,000
RDD&D .....	5,976,375	2,017,602	1,820,892	- 4,155,483	- 196,710
Energy efficiency and conservation block grants—competitive (emergency appropriation Public Law 111-5) .....	400,000			- 400,000	
Energy efficiency and conservation block grants—Subtitle E, title V, EISA (emergency appropriation Public Law 111-5) .....	2,800,000			- 2,800,000	
Weatherization and intragovernmental:					
Weatherization:					
Weatherization assistance .....		220,000	200,000	+ 200,000	- 20,000
Emergency appropriation (Public Law 111-5) .....	4,900,000			- 4,900,000	
Training and technical assistance .....					
Emergency appropriation (Public Law 111-5) .....	100,000			- 100,000	
Weatherization and technical assistance .....	200,000			- 200,000	
Subtotal, Weatherization .....	5,200,000	220,000	200,000	- 5,000,000	- 20,000
Other:					
State energy program grants .....	50,000	75,000	50,000		- 25,000
Emergency appropriation (Public Law 111-5) .....	3,100,000			- 3,100,000	
International renewable energy program .....	5,000			- 5,000	
Tribal energy activities .....	6,000	6,000	10,000	+ 4,000	+ 4,000
Renewable energy production incentive .....	5,000		5,000		+ 5,000

# DEPARTMENT OF ENERGY—Continued

[In thousands of dollars]

	Enacted	Budget estimate	Committee recommendation	Committee recommendation compared to—	
				Enacted	Budget estimate
Asia pacific .....					
Subtotal, Other .....	3,166,000	81,000	65,000	— 3,101,000	— 16,000
Subtotal, Weatherization and intragovernmental .....	8,366,000	301,000	265,000	— 8,101,000	— 36,000
Energy efficiency and renewable energy research and development [EERE R&D] (emergency appropriation Public Law 111–5) .....	970,600			— 970,600	
Use of prior year balances .....	— 13,238			+ 13,238	
Congressionally directed projects .....	228,803		148,075	— 80,728	+ 148,075
Emergency appropriations (Public Law 110–329) .....	250,000			— 250,000	
TOTAL, ENERGY EFFICIENCY AND RENEWABLE ENERGY .....	18,978,540	2,318,602	2,233,967	— 16,744,573	— 84,635
Appropriations .....	(1,928,540)	(2,318,602)	(2,233,967)	(+ 305,427)	(— 84,635)
Emergency appropriations .....	(17,050,000)			(— 17,050,000)	
ELECTRICITY DELIVERY AND ENERGY RELIABILITY					
Research and development:					
High temperature superconductivity R&D .....	23,796			— 23,796	
Visualization and controls .....	24,373			— 24,373	
Energy storage and power electronics .....	6,552			— 6,552	
Renewable and distributed systems integration .....	30,000			— 30,000	
Clean energy transmission and reliability .....		42,000	42,000	+ 42,000	
Smart grid research and development .....		67,000	32,000	+ 32,000	— 35,000
Energy storage .....		15,000	15,000	+ 15,000	
Cyber security for energy delivery systems .....		50,000	50,000	+ 50,000	
Subtotal, Research and development .....	84,721	174,000	139,000	+ 54,279	— 35,000
Operations and analysis .....	11,451			— 11,451	
Permitting, siting, and analysis .....		6,400	6,400	+ 6,400	
Infrastructure security and energy restoration .....		6,188	6,188	+ 6,188	
Program direction .....	21,180	21,420	21,420	+ 240	

Emergency appropriation (Public Law 111-5) .....	22,500			— 22,500	
Congressionally directed projects .....	19,648		6,475	— 13,173	+ 6,475
Emergency appropriations (Public Law 111-5):					
Smart grid investment program [EISA 1306] .....	3,375,700			— 3,375,700	
Smart grid regional and energy storage demos .....	700,000			— 700,000	
Workforce training .....	100,000			— 100,000	
Interoperability standards and framework .....	10,288			— 10,288	
Interconnection planning and analysis .....	80,000			— 80,000	
Other recovery act .....	211,512			— 211,512	
TOTAL, ELECTRICITY DELIVERY AND ENERGY RELIABILITY .....	4,637,000	208,008	179,483	— 4,457,517	— 28,525
Appropriations .....	(137,000)	(208,008)	(179,483)	(+ 42,483)	(— 28,525)
Emergency appropriations .....	(4,500,000)			(— 4,500,000)	
NUCLEAR ENERGY					
Research and development:					
Integrated university program .....	5,000		5,000		+ 5,000
Nuclear power 2010 .....	177,500	20,000	120,000	— 57,500	+ 100,000
Generation IV nuclear energy systems .....	180,000	191,000	143,000	— 37,000	— 48,000
Nuclear hydrogen initiative .....	7,500			— 7,500	
Advanced fuel cycle initiative .....	145,000			— 145,000	
Fuel cycle research and development .....		192,000	145,000	+ 145,000	— 47,000
Subtotal, Research and development .....	515,000	403,000	413,000	— 102,000	+ 10,000
Infrastructure:					
Radiological facilities management:					
Space and defense infrastructure .....	35,000	47,000	47,000	+ 12,000	
Research reactor infrastructure .....	6,146		15,000	+ 3,854	+ 10,000
Oak Ridge nuclear infrastructure .....	12,500			— 12,500	
Los Alamos nuclear infrastructure .....	12,500			— 12,500	
PU-238 production restart project .....		30,000		+ 5,000	— 25,000
Subtotal, Radiological facilities management .....	66,146	77,000	62,000	— 4,146	— 15,000
INL infrastructure:					
INL Operations and infrastructure .....	140,000	203,402	211,274	+ 71,274	+ 7,872
Idaho sitewide safeguards and security .....	78,811	83,358	83,358	+ 4,547	
Subtotal, INL Infrastructure .....	284,957	363,760	356,632	+ 71,675	— 7,128

# DEPARTMENT OF ENERGY—Continued

[In thousands of dollars]

	Enacted	Budget estimate	Committee recommendation	Committee recommendation compared to—	
				Enacted	Budget estimate
Program direction .....	73,000	77,872	73,000	.....	— 4,872
Use of prior year balances .....	— 5,000	.....	.....	+ 5,000	.....
Subtotal, Nuclear Energy .....	867,957	844,632	842,632	— 25,325	— 2,000
Funding from other defense activities .....	— 78,811	— 83,358	— 83,358	— 4,547	.....
Congressionally directed projects .....	2,854	.....	2,000	— 854	+ 2,000
TOTAL, NUCLEAR ENERGY .....	792,000	761,274	761,274	— 30,726	.....
CLEAN COAL TECHNOLOGY					
Deferral of unobligated balances, fiscal year 2009 .....	149,000	.....	.....	— 149,000	.....
Transfer to Fossil Energy R&D [CCPI] .....	— 149,000	.....	.....	+ 149,000	.....
TOTAL, CLEAN COAL TECHNOLOGY .....	.....	.....	.....	.....	.....
FOSSIL ENERGY RESEARCH AND DEVELOPMENT					
Clean coal power initiative .....	288,174	.....	.....	— 288,174	.....
FutureGen .....	.....	.....	.....	.....	.....
Fuels and Power Systems:					
Innovations for existing plants .....	50,000	41,000	58,000	+ 8,000	+ 17,000
Advanced integrated gasification combined cycle .....	65,236	55,000	65,000	— 236	+ 10,000
Advanced turbines .....	28,000	31,000	32,000	+ 4,000	+ 1,000
Carbon sequestration .....	150,000	179,865	160,200	+ 10,200	— 19,665
Emergency appropriations (Public Law 111–5):					
Carbon capture and storage .....	1,000,000	.....	.....	— 1,000,000	.....
Geologic sequestration site characterization .....	50,000	.....	.....	— 50,000	.....
Geologic sequestration training and research grant program .....	20,000	.....	.....	— 20,000	.....
Clean coal power initiative round 3 .....	800,000	.....	.....	— 800,000	.....
Carbon capture competitive solicitation .....	1,520,000	.....	.....	— 1,520,000	.....

Fuels .....	25,000	15,000	25,000	.....	+ 10,000
Fuel cells .....	58,000	54,000	58,000	.....	+ 4,000
Advanced research .....	28,000	28,000	30,000	+ 2,000	+ 2,000
Subtotal, Fuels and power systems .....	3,794,236	403,865	428,200	- 3,366,036	+ 24,335
Subtotal, Coal .....	4,082,410	403,865	428,200	- 3,654,210	+ 24,335
Appropriations .....	(692,410)	(403,865)	(428,200)	( - 264,210)	( + 24,335)
Emergency appropriations .....	(3,390,000)	.....	.....	( - 3,390,000)	.....
Natural Gas Technologies .....	20,000	25,000	25,000	+ 5,000	.....
Petroleum—Oil Technologies .....	5,000	.....	25,000	+ 20,000	+ 25,000
Program direction .....	152,000	158,000	158,000	+ 6,000	.....
Emergency appropriation (Public Law 111-5) .....	10,000	.....	.....	- 10,000	.....
Plant and Capital Equipment .....	18,000	20,000	20,000	+ 2,000	.....
Fossil energy environmental restoration .....	9,700	10,000	10,000	+ 300	.....
Special recruitment programs .....	656	700	700	+ 44	.....
Cooperative research and development .....	5,000	.....	5,000	.....	+ 5,000
Congressionally directed projects .....	43,864	.....	27,300	- 16,564	+ 27,300
Use of prior year balances .....	- 70,310	.....	.....	+ 70,310	.....
TOTAL, FOSSIL ENERGY RESEARCH AND DEVELOPMENT .....	4,276,320	617,565	699,200	- 3,577,120	+ 81,635
Appropriations .....	(876,320)	(617,565)	(699,200)	( - 177,120)	( + 81,635)
Emergency appropriations .....	(3,400,000)	.....	.....	( - 3,400,000)	.....
NAVAL PETROLEUM AND OIL SHALE RESERVES .....	19,099	23,627	23,627	+ 4,528	.....
STRATEGIC PETROLEUM RESERVE .....	205,000	.....	.....	- 205,000	.....
Storage facilities development .....	.....	209,482	239,482	+ 239,482	+ 30,000
Management for SPR operations .....	.....	19,591	19,591	+ 19,591	.....
Use of prior year balances .....	.....	.....	.....	.....	.....
TOTAL, STRATEGIC PETROLEUM RESERVE .....	205,000	229,073	259,073	+ 54,073	+ 30,000
NORTHEAST HOME HEATING OIL RESERVE .....	9,800	11,300	11,300	+ 1,500	.....
ENERGY INFORMATION ADMINISTRATION .....	110,595	133,058	110,595	.....	- 22,463
NON-DEFENSE ENVIRONMENTAL CLEANUP					
Fast Flux Test Reactor Facility (WA) .....	10,755	7,652	7,652	- 3,103	.....
Operating expenses .....	48,296	104,444	104,444	+ 56,148	.....
02-U-101, Depleted uranium hexafluoride conversion facility .....	33,000	.....	.....	- 33,000	.....



DEPARTMENT OF ENERGY—Continued

[In thousands of dollars]

	Enacted	Budget estimate	Committee recommendation	Committee recommendation compared to—	
				Enacted	Budget estimate
Total, Gaseous Diffusion Plants .....	81,296	104,444	104,444	+ 23,148	.....
Depleted Uranium Hexafluoride Conversion, 02–U–101 .....	.....	.....	.....	.....	.....
Small Sites:					
Argonne National Lab .....	9,479	.....	.....	– 9,479	.....
Transfer from Science .....	10,000	.....	.....	– 10,000	.....
Transfer from NNSA .....	10,000	.....	.....	– 10,000	.....
Emergency appropriation (Public Law 111–5) .....	98,500	.....	.....	– 98,500	.....
Subtotal, Argonne National Lab .....	127,979	.....	.....	– 127,979	.....
Brookhaven National Lab .....	8,433	12,614	17,500	+ 9,067	+ 4,886
Emergency appropriation (Public Law 111–5) .....	42,355	.....	.....	– 42,355	.....
Idaho National Lab .....	13,478	5,000	5,000	– 8,478	.....
Consolidated Business Center:					
California Site support .....	187	262	262	+ 75	.....
Stanford Linear Accelerator Center .....	4,883	4,600	4,600	– 283	.....
Emergency appropriation (Public Law 111–5) .....	7,925	.....	.....	– 7,925	.....
Energy Technology Engineering Center .....	15,000	13,000	13,000	– 2,000	.....
Emergency appropriation (Public Law 111–5) .....	54,175	.....	.....	– 54,175	.....
Los Alamos National Lab .....	1,905	.....	.....	– 1,905	.....
Emergency appropriation (Public Law 111–5) .....	14,775	.....	.....	– 14,775	.....
Moab .....	40,699	30,671	40,671	– 28	+ 10,000
Emergency appropriation (Public Law 111–5) .....	108,350	.....	.....	– 108,350	.....
Tuba City .....	5,000	.....	.....	– 5,000	.....
Completed sites administration and support .....	1,100	1,200	1,200	+ 100	.....
Oak Ridge National Laboratory (emergency appropriation, Public Law 111–5) .....	78,800	.....	.....	– 78,800	.....
Subtotal, Consolidated Business Center .....	332,799	49,733	59,733	– 273,066	+ 10,000
Funding from Science, NNSA .....	– 20,000	.....	.....	+ 20,000	.....
Subtotal, Small Sites .....	505,044	67,347	82,233	– 422,811	+ 14,886

West Valley Demonstration Project .....	65,500	58,074	65,500	.....	+ 7,426
Emergency appropriation (Public Law 111-5) .....	73,875	.....	.....	- 73,875	.....
AARA Non-defense program direction (emergency appropriation, Public Law 111-5) .....	2,415	.....	.....	- 2,415	.....
ARRA Non-defense unallocated (emergency appropriation, Public Law 111-5) .....	1,830	.....	.....	- 1,830	.....
Use of Prior year balances .....	- 653	.....	.....	+ 653	.....
Congressionally directed projects .....	4,757	.....	.....	- 4,757	.....
<b>TOTAL, NON-DEFENSE ENVIRONMENTAL CLEANUP .....</b>	<b>744,819</b>	<b>237,517</b>	<b>259,829</b>	<b>- 484,990</b>	<b>+ 22,312</b>
Appropriations .....	(261,819)	(237,517)	(259,829)	(- 1,990)	(+ 22,312)
Emergency appropriations .....	(483,000)	.....	.....	(- 483,000)	.....
<b>URANIUM ENRICHMENT DECONTAMINATION AND DECOMMISSIONING FUND</b>					
Decontamination and decommissioning .....	525,503	559,377	588,322	+ 62,819	+ 28,945
Uranium/thorium reimbursement .....	10,000	.....	.....	- 10,000	.....
Emergency appropriations (Public Law 111-5):					
Uranium/thorium reimbursement .....	68,950	.....	.....	- 68,950	.....
ARRA Oak Ridge .....	118,200	.....	.....	- 118,200	.....
AARA Paducah .....	78,800	.....	.....	- 78,800	.....
ARRA Portsmouth .....	118,200	.....	.....	- 118,200	.....
ARRA program direction .....	1,950	.....	.....	- 1,950	.....
ARRA unallocated .....	3,900	.....	.....	- 3,900	.....
Offsetting collections .....	.....	- 200,000	.....	.....	+ 200,000
<b>TOTAL, UED&amp;D FUND/URANIUM INVENTORY CLEANUP .....</b>	<b>925,503</b>	<b>359,377</b>	<b>588,322</b>	<b>- 337,181</b>	<b>+ 228,945</b>
<b>SCIENCE</b>					
High energy physics:					
Proton accelerator-based physics .....	410,343	442,988	436,988	+ 26,645	- 6,000
Emergency appropriation, Public Law 111-5 .....	107,990	.....	.....	- 107,990	.....
Electron accelerator-based physics .....	48,772	26,420	26,420	- 22,352	.....
Emergency appropriation, Public Law 111-5 .....	1,400	.....	.....	- 1,400	.....
Non-accelerator physics .....	86,482	99,321	99,321	+ 12,839	.....
Emergency appropriation, Public Law 111-5 .....	4,445	.....	.....	- 4,445	.....
Theoretical physics .....	63,036	67,240	67,240	+ 4,204	.....
Emergency appropriation, Public Law 111-5 .....	5,975	.....	.....	- 5,975	.....
Advanced technology R&D .....	187,093	183,031	183,031	- 4,062	.....
Emergency appropriation, Public Law 111-5 .....	112,580	.....	.....	- 112,580	.....
<b>Total, High energy physics .....</b>	<b>1,028,116</b>	<b>819,000</b>	<b>813,000</b>	<b>- 215,116</b>	<b>- 6,000</b>

DEPARTMENT OF ENERGY—Continued

[In thousands of dollars]

	Enacted	Budget estimate	Committee recommendation	Committee recommendation compared to—	
				Enacted	Budget estimate
Nuclear physics .....	481,019	530,000	518,000	+ 36,981	— 12,000
Emergency appropriation, Public Law 111–5 .....	89,800			— 89,800	
Construction:					
07–SC–02 Electron beam ion source Brookhaven National Laboratory, NY .....	2,438			— 2,438	
06–SC–01 Project engineering and design [PED] 12 GeV continuous electron beam accelerator facility upgrade, Thomas Jefferson National Accelerator facility (was project 07–SC–001), Newport News, VA .....	28,623	22,000	22,000	— 6,623	
Emergency appropriation, Public Law 111–5 .....	65,000			— 65,000	
Total, Nuclear physics .....	666,880	552,000	540,000	— 126,880	— 12,000
Biological and environmental research:					
Biological research .....	423,613			— 423,613	
Emergency appropriation, Public Law 111–5 .....	100,793			— 100,793	
Climate change research .....	177,927			— 177,927	
Emergency appropriation, Public Law 111–5 .....	64,860			— 64,860	
Biological systems science .....		318,476	318,476	+ 318,476	
Climate and environmental sciences .....		285,706	285,706	+ 285,706	
Total, Biological and environmental research .....	767,193	604,182	604,182	— 163,011	
Basic energy sciences:					
Research:					
Materials sciences and engineering research .....	1,129,391	381,112	1,172,903	+ 43,512	+ 791,791
Emergency appropriation, Public Law 111–5 .....	236,798			— 236,798	
Chemical sciences, geosciences, and energy:					
Emergency appropriation, Public Law 111–5 .....	154,062			— 154,062	
Biosciences .....	297,113	338,357	326,357	+ 29,244	— 12,000
Scientific user facilities .....		811,791			— 811,791
Subtotal, Research .....	1,817,364	1,531,260	1,499,260	— 318,104	— 32,000
Construction:					
08–SC–01 Advanced light source [ALS] user support building, LBNL, CA .....	11,500			— 11,500	

Emergency appropriation, Public Law 111-5 .....	14,546			— 14,546	
08-SC-11 Photon ultrafast laser science and engineering [PULSE] building renovation, SLAC, CA .....	3,728			— 3,728	
07-SC-06 Project engineering and design [PED]:					
National Synchrotron light source II [NSLS-II] .....	93,273	139,000	139,000	+ 45,727	
Emergency appropriation, Public Law 111-5 .....	150,000			— 150,000	
05-R-320 LINAC coherent light source [LCLS] .....	36,967	15,240	15,240	— 21,727	
Subtotal, Construction .....	310,014	154,240	154,240	— 155,774	
Total, Basic energy sciences .....	2,127,378	1,685,500	1,653,500	— 473,878	— 32,000
Advanced scientific computing research .....	368,820	409,000	399,000	+ 30,180	— 10,000
Emergency appropriation, Public Law 111-5 .....	157,110			— 157,110	
Fusion energy sciences program .....	402,550	421,000	416,000	+ 13,450	— 5,000
Emergency appropriation, Public Law 111-5 .....	91,023			— 91,023	
Science laboratories infrastructure:					
Laboratories facilities support:					
Infrastructure support:					
Payment in lieu of taxes .....	1,385	1,385	1,385		
Excess facilities disposal .....	24,844			— 24,844	
Emergency appropriation, Public Law 111-5 .....	14,301			— 14,301	
Oak Ridge landlord .....	5,079	5,214	5,214	+ 135	
General plant projects (emergency appropriations Public Law 111-5) .....	89,572			— 89,572	
Subtotal, Infrastructure support .....	135,181	6,599	6,599	— 128,582	
Construction:					
10-SC-70 Research support building and infrastructure modernization, SLAC .....		8,900	8,900	+ 8,900	
10-SC-71 Energy sciences building, ANL .....		10,000	10,000	+ 10,000	
10-SC-72 Renovate science laboratory, Phase II, BNL .....		7,000	7,000	+ 7,000	
09-SC-72 Seismic life-safety, modernization and replacement of general purpose buildings Phase					
2, PED/Construction, LBNL .....	12,495	34,027	34,027	+ 21,532	
Emergency appropriation, Public Law 111-5 .....	15,000			— 15,000	
09-SC-73, Interdisciplinary science building Phase 1, PED, BNL .....	8,240	39,387	39,387	+ 31,147	
Emergency appropriation, Public Law 111-5 .....	18,673			— 18,673	
09-SC-74, Technology and engineering development facilities PED, TJNAF .....	3,700	27,687	27,687	+ 23,987	
08-SC-71 Modernization of laboratory facilities PED, ORNL .....	25,103			— 25,103	
Emergency appropriation, Public Law 111-5 .....	60,568			— 60,568	
07-SC-05 Physical science facilities, PNNL .....	52,775			— 52,775	

# DEPARTMENT OF ENERGY—Continued

[In thousands of dollars]

	Enacted	Budget estimate	Committee recommendation	Committee recommendation compared to—	
				Enacted	Budget estimate
03–SC–001 Science laboratories infrastructure:					
MEL–001 Multiprogram energy laboratory infrastructure projects, various locations .....	11,759	.....	.....	– 11,759	.....
Subtotal, Construction .....	208,313	127,001	127,001	– 81,312	.....
Total, Science laboratories infrastructure .....	343,494	133,600	133,600	– 209,894	.....
Safeguards and security .....	80,603	83,000	83,000	+ 2,397	.....
Science program direction:					
Headquarters .....	75,525	86,606	80,606	+ 5,081	– 6,000
Office of Science and Technical Information .....	8,916	8,916	8,916	.....	.....
Emergency appropriation, Public Law 111–5 .....	1,600	.....	.....	– 1,600	.....
Field offices .....	102,254	118,200	105,200	+ 2,946	– 13,000
Total, Science program direction .....	188,295	213,722	194,722	+ 6,427	– 19,000
Workforce development for teachers and scientists .....	13,583	20,678	20,678	+ 7,095	.....
Emergency appropriation, Public Law 111–5 .....	12,500	.....	.....	– 12,500	.....
Advanced Research Projects Agency—Energy [ARPA–E] .....	15,000	.....	.....	– 15,000	.....
Congressionally directed projects .....	93,687	.....	41,150	– 52,537	+ 41,150
Small business innovation research [SBIR]:					
Emergency appropriation, Public Law 111–5 .....	19,004	.....	.....	– 19,004	.....
Subtotal, SCIENCE .....	6,375,236	4,941,682	4,898,832	– 1,476,404	– 42,850
Use of prior year balances .....	– 15,000	.....	.....	+ 15,000	.....
Unallocated recovery act funding (Emergency appropriation, Public Law 111–5) .....	12,400	.....	.....	– 12,400	.....
TOTAL, SCIENCE .....	6,372,636	4,941,682	4,898,832	– 1,473,804	– 42,850
Appropriations .....	(4,772,636)	(4,941,682)	(4,898,832)	(+ 126,196)	(– 42,850)
Emergency appropriations .....	(1,600,000)	.....	.....	(– 1,600,000)	.....

ENERGY TRANSFORMATION ACCELERATION FUND					
Advanced research projects agency—Energy (Emergency appropriation, Public Law 111–5) .....	398,000			— 398,000	
Program direction .....		10,000			— 10,000
Emergency appropriation, Public Law 111–5 .....	2,000			— 2,000	
TOTAL, ENERGY TRANSFORMATION ACCELERATION FUND .....	400,000	10,000		— 400,000	— 10,000
NUCLEAR WASTE DISPOSAL					
Repository program .....	68,552	28,400	28,400	— 40,152	
Program direction .....	74,983	70,000	70,000	— 4,983	
Congressionally directed projects .....	1,855			— 1,855	
TOTAL, NUCLEAR WASTE DISPOSAL .....	145,390	98,400	98,400	— 46,990	
TITLE 17—INNOVATIVE TECHNOLOGY GUARANTEE PROGRAM					
Administrative operations .....	19,880	43,000	43,000	+ 23,120	
Offsetting collection .....	— 19,880	— 43,000	— 43,000	— 23,120	
Advance appropriation (Public Law 110–161) .....	25,000			— 25,000	
Proposed change in subsidy cost .....	440,000	1,500,000		— 440,000	— 1,500,000
Section 1705 Temporary loan guarantee program:					
Direct loan subsidy costs (Emergency appropriations, Public Law 111–5) .....	5,965,000			— 5,965,000	
Administrative expenses .....		17,000	17,000	+ 17,000	
Emergency appropriation, Public Law 111–5 .....	35,000			— 35,000	
Administrative expenses, offsetting collections .....		— 17,000	— 17,000	— 17,000	
TOTAL, TITLE 17—INNOVATIVE TECHNOLOGY GUARANTEE PROGRAM .....	6,465,000	1,500,000		— 6,465,000	— 1,500,000
ADVANCED TECHNOLOGY VEHICLES MANUFACTURING LOAN PGM					
Direct loan subsidy costs (Emergency appropriations Public Law 110–329) .....	7,510,000			— 7,510,000	
Administrative expenses .....		20,000	20,000	+ 20,000	
Emergency appropriation, Public Law 111–5 .....					
TOTAL, ADVANCED TECHNOLOGY VEHICLES MANUFACTURING LOAN PGM .....	7,510,000	20,000	20,000	— 7,490,000	
DEPARTMENTAL ADMINISTRATION					
Administrative operations:					
Salaries and expenses:					
Office of the Secretary .....	5,700	5,864	6,864	+ 1,164	+ 1,000

# DEPARTMENT OF ENERGY—Continued

[In thousands of dollars]

	Enacted	Budget estimate	Committee recommendation	Committee recommendation compared to—	
				Enacted	Budget estimate
Chief Financial Officer .....	43,257	65,981	63,981	+ 20,724	— 2,000
Management .....	67,790	88,456	78,456	+ 10,666	— 10,000
Human capital management .....	31,436	29,537	29,537	— 1,899	.....
Chief Information Officer .....	53,738	38,146	38,146	— 15,592	.....
Congressional and intergovernmental affairs .....	4,700	7,326	5,826	+ 1,126	— 1,500
Economic impact and diversity .....	3,545	3,896	3,896	+ 351	.....
General Counsel .....	31,233	32,478	32,478	+ 1,245	.....
Policy and international affairs .....	19,469	19,296	19,296	— 173	.....
Public affairs .....	3,780	5,405	4,500	+ 720	— 905
Office of Indian Energy Policy and Programs .....	1,500	.....	5,500	+ 4,000	+ 5,500
Subtotal, Salaries and expenses .....	266,148	296,385	288,480	+ 22,332	— 7,905
Program support:					
Minority economic impact .....	855	2,775	2,775	+ 1,920	.....
Policy analysis and system studies .....	1,000	1,159	1,159	+ 159	.....
Environmental policy studies .....	531	528	528	— 3	.....
Climate change technology program (prog. supp) .....	2,000	9,270	9,270	+ 7,270	.....
Cybersecurity and secure communications .....	34,512	33,365	33,365	— 1,147	.....
Corporate management information program .....	27,250	9,403	9,403	— 17,847	.....
Energy information technology services .....	.....	23,631	23,149	+ 23,149	— 482
Subtotal, Program support .....	66,148	80,131	79,649	+ 13,501	— 482
Total, Administrative operations .....	332,296	376,516	368,129	+ 35,833	— 8,387
Cost of work for others .....	48,537	48,537	48,537	.....	.....
SUBTOTAL, DEPARTMENTAL ADMINISTRATION .....	380,833	425,053	416,666	+ 35,833	— 8,387
Funding from other defense activities .....	— 108,190	— 122,982	— 122,982	— 14,792	.....

Total, Departmental administration (gross) .....	272,643	302,071	293,684	+ 21,041	— 8,387
Miscellaneous revenues .....	— 117,317	— 119,740	— 119,740	— 2,423	.....
TOTAL, DEPARTMENTAL ADMINISTRATION (net) .....	155,326	182,331	173,944	+ 18,618	— 8,387
OFFICE OF INSPECTOR GENERAL .....	51,927	51,445	51,927	.....	+ 482
Emergency appropriation, Public Law 111-5 .....	15,000	.....	.....	— 15,000	.....
ATOMIC ENERGY DEFENSE ACTIVITIES					
NATIONAL NUCLEAR SECURITY ADMINISTRATION					
WEAPONS ACTIVITIES:					
Life extension program:					
B61 Life extension program .....	2,123	.....	.....	— 2,123	.....
W76 Life extension program .....	202,920	209,196	209,196	+ 6,276	.....
Total, Life extension program .....	205,043	209,196	209,196	+ 4,153	.....
Stockpile systems:					
B61 Stockpile systems .....	78,021	124,456	124,456	+ 46,435	.....
W62 Stockpile systems .....	1,596	.....	.....	— 1,596	.....
W76 Stockpile systems .....	66,365	65,497	65,497	— 868	.....
W78 Stockpile systems .....	42,049	50,741	50,741	+ 8,692	.....
W80 Stockpile systems .....	31,073	19,064	19,064	— 12,009	.....
B83 Stockpile systems .....	24,986	35,682	35,682	+ 10,696	.....
W87 Stockpile systems .....	36,073	51,817	51,817	+ 15,744	.....
W88 Stockpile systems .....	48,358	43,043	43,043	— 5,315	.....
Total, Stockpile systems .....	328,521	390,300	390,300	+ 61,779	.....
Reliable replacement warhead .....	.....	.....	.....	.....	.....
Weapons dismantlement and disposition:					
Operations and maintenance .....	125,322	84,100	84,100	— 41,222	.....
Emergency appropriation, Public Law 111-32 .....	30,000	.....	.....	— 30,000	.....
Construction:					
99-D-141 Pit disassembly and conversion facility, SRS .....	64,883	.....	.....	— 64,883	.....
Total, Weapons dismantlement and disposition .....	220,205	84,100	84,100	— 136,105	.....



# DEPARTMENT OF ENERGY—Continued

[In thousands of dollars]

	Enacted	Budget estimate	Committee recommendation	Committee recommendation compared to—	
				Enacted	Budget estimate
Stockpile services:					
Production support .....	293,062	301,484	301,484	+ 8,422	.....
Research and development support .....	35,144	37,071	37,071	+ 1,927	.....
Research and development certification and safety .....	187,574	143,076	173,076	— 14,498	+ 30,000
Management, technology, and production .....	195,334	200,223	183,223	— 12,111	— 17,000
Pit manufacturing .....	.....	.....	.....	.....	.....
Pit manufacturing capability .....	.....	.....	.....	.....	.....
Plutonium capability .....	155,269	.....	.....	— 155,269	.....
Plutonium infrastructure sustainment .....	.....	149,201	149,201	+ 149,201	.....
Subtotal, Stockpile services .....	866,383	831,055	844,055	— 22,328	+ 13,000
Total, Directed stockpile work .....	1,620,152	1,514,651	1,527,651	— 92,501	+ 13,000
Campaigns:					
Science campaign:					
Advanced certification, non-RRW .....	19,400	19,400	19,400	.....	.....
Primary assessment technologies .....	80,181	80,181	83,181	+ 3,000	+ 3,000
Dynamic plutonium experiments .....	23,022	.....	.....	— 23,022	.....
Dynamic materials properties .....	83,231	86,617	86,617	+ 3,386	.....
Academic alliances .....	.....	30,251	30,251	+ 30,251	.....
Advanced radiography .....	28,535	22,328	22,328	— 6,207	.....
Secondary assessment technologies .....	76,913	77,913	77,913	+ 1,000	.....
Test readiness .....	5,408	.....	.....	— 5,408	.....
Subtotal, Science campaigns .....	316,690	316,690	319,690	+ 3,000	+ 3,000
Engineering campaign:					
Enhanced surety, non-RRW .....	46,112	42,000	42,000	— 4,112	.....
Weapons system engineering assessment technology .....	16,592	18,000	18,000	+ 1,408	.....
Nuclear survivability .....	21,100	21,000	21,000	— 100	.....
Enhanced surveillance .....	66,196	69,000	69,000	+ 2,804	.....

Subtotal, Engineering campaign .....	150,000	150,000	150,000	.....	.....
Inertial confinement fusion ignition and high yield campaign:					
Ignition .....	100,535	106,734	106,734	+ 6,199	.....
NIF diagnostics, cryogenics and experimental support .....	66,201	72,252	72,252	+ 6,051	.....
Pulsed power inertial confinement fusion .....	8,652	5,000	5,000	- 3,652	.....
Joint program in high energy density laboratory plasmas .....	3,053	4,000	4,000	+ 947	.....
Facility operations and target production .....	203,282	248,929	265,429	+ 62,147	+ 16,500
Inertial fusion technology .....	.....	.....	.....	.....	.....
Naval Research Laboratory .....	.....	.....	.....	.....	.....
NIF assembly and installation .....	55,192	.....	.....	- 55,192	.....
Subtotal .....	436,915	436,915	453,415	+ 16,500	+ 16,500
Subtotal, Inertial confinement fusion .....	436,915	436,915	453,415	+ 16,500	+ 16,500
Advanced simulation and computing .....	556,125	556,125	566,125	+ 10,000	+ 10,000
Readiness campaign:					
Stockpile readiness .....	27,869	5,746	5,746	- 22,123	.....
High explosives and weapon operations .....	8,659	4,608	4,608	- 4,051	.....
Nonnuclear readiness .....	30,000	12,701	12,701	- 17,299	.....
Tritium readiness .....	71,831	68,246	68,246	- 3,585	.....
Advanced design and production technologies .....	22,261	8,699	8,699	- 13,562	.....
Subtotal, Readiness campaign .....	160,620	100,000	100,000	- 60,620	.....
Total, Campaigns .....	1,620,350	1,559,730	1,589,230	- 31,120	+ 29,500
Readiness in technical base and facilities [RTBF]:					
Operations of facilities:					
Operations of facilities .....	.....	1,342,303	.....	.....	- 1,342,303
Kansas City Plant .....	89,871	.....	156,056	+ 66,185	+ 156,056
Lawrence Livermore National Laboratory .....	82,605	.....	86,670	+ 4,065	+ 86,670
Los Alamos National Laboratory .....	289,169	.....	311,776	+ 22,607	+ 311,776
Nevada Test Site .....	92,203	.....	79,583	- 12,620	+ 79,583
Pantex .....	101,230	.....	131,602	+ 30,372	+ 131,602
Sandia national Laboratory .....	123,992	.....	104,133	- 19,859	+ 104,133
Savannah River Site .....	92,762	.....	128,580	+ 35,818	+ 128,580
Y-12 Productions Plant .....	235,397	.....	210,774	- 24,623	+ 210,774
Institutional Site Support .....	56,102	.....	120,129	+ 64,027	+ 120,129

DEPARTMENT OF ENERGY—Continued

[In thousands of dollars]

	Enacted	Budget estimate	Committee recommendation	Committee recommendation compared to—	
				Enacted	Budget estimate
Subtotal, operations of facilities .....	1,163,331	1,342,303	1,329,303	+ 165,972	— 13,000
Program readiness .....	71,626	73,021	73,021	+ 1,395	.....
Material recycle and recovery .....	70,334	69,542	69,542	— 792	.....
Containers .....	22,696	23,392	23,392	+ 696	.....
Storage .....	31,951	24,708	24,708	— 7,243	.....
Subtotal, RTBF .....	1,359,938	1,532,966	1,519,966	+ 160,028	— 13,000
Construction:					
10-D-501 Nuclear facilities risk reduction Y-12 National security complex, Oakridge, TN .....		12,500	12,500	+ 12,500	.....
99-D-141 Pit disassembly and conversion facility, SRS .....		30,321	30,321	+ 30,321	.....
09-D-007, LANSCE Reinvestment PED Los Alamos National Lab, Los Alamos, NM .....	19,300		30,000	+ 10,700	+ 30,000
09-D-404, Test capabilities revitalization II, Sandia National Laboratories, Albuquerque, NM .....	3,104		13,000	+ 9,896	+ 13,000
08-D-801 High pressure fire loop [HPFL], Pantex Plant, Amarillo, TX .....	1,940	31,910	31,910	+ 29,970	.....
08-D-802 High explosive pressing facility Pantex Plant, Amarillo, TX .....	27,386			— 27,386	.....
08-D-804 TA-55 Reinvestment project, Los Alamos National Laboratory [LANL] .....	7,663			— 7,663	.....
08-D-806 Ion beam laboratory refurbishment, SNL Albuquerque, NM .....	6,100			— 6,100	.....
07-D-140 Project engineering and design [PED], various locations .....	7,223			— 7,223	.....
07-D-220 Radioactive liquid waste treatment facility upgrade project, LANL .....	19,070			— 19,070	.....
06-D-140 Project engineering and design [PED], various locations .....	101,521	70,678	16,200	— 85,321	— 54,478
06-D-141 Project engineering and design [PED], Y-12 National Security Complex, Oak Ridge, TN ...			94,000	+ 94,000	+ 94,000
06-D-402 NTS replace fire stations 1 & 2 Nevada Test Site, NV .....	9,060	1,473	1,473	— 7,587	.....
05-D-402 Beryllium capability [BEC] project, Y-12 National security complex, Oak Ridge, TN .....	4,865			— 4,865	.....
04-D-125 Chemistry and metallurgy facility replacement project, Los Alamos National Laboratory, Los Alamos, NM .....	97,194	55,000	98,000	+ 806	+ 43,000
04-D-128 TA-18 mission relocation project, Los Alamos Laboratory, Los Alamos, NM .....	10,042	1,500	1,500	— 8,542	.....
Subtotal, Construction .....	314,468	203,382	328,904	+ 14,436	+ 125,522
Total, Readiness in technical base and facilities .....	1,674,406	1,736,348	1,848,870	+ 174,464	+ 112,522
Secure transportation asset:					
Operations and equipment .....	127,701	138,772	138,772	+ 11,071	.....

Program direction .....	86,738	96,143	96,143	+ 9,405	.....
Subtotal, Secure transportation asset .....	214,439	234,915	234,915	+ 20,476	.....
Nuclear weapons incident response .....	215,278	221,936	221,936	+ 6,658	.....
Facilities and infrastructure recapitalization pgm:	79,550	144,959	144,959	+ 65,409	.....
Construction:					
08-D-601 Mercury highway, Nevada Test Site, NV .....	11,349	.....	.....	- 11,349	.....
08-D-602 Portable water system upgrades Y-12 Plant, Oak Ridge, TN .....	26,836	.....	.....	- 26,836	.....
07-D-253 TA 1 heating systems modernization [HSM] Sandia National Laboratory .....	15,282	9,963	9,963	- 5,319	.....
06-D-601 Electrical distribution system upgrade, Pantex Plant, Amarillo, TX .....	3,880	.....	.....	- 3,880	.....
06-D-603 Steam plant life extension project [SLEP], Y-12 National Security Complex, Oak Ridge, TN .....	10,552	.....	.....	- 10,552	.....
Subtotal, Construction .....	67,899	9,963	9,963	- 57,936	.....
Total, Facilities and infrastructure recapitalization program .....	147,449	154,922	154,922	+ 7,473	.....
Site stewardship:					
Environmental projects and operations .....	.....	41,288	41,288	+ 41,288	.....
Nuclear materials integration .....	.....	20,000	20,000	+ 20,000	.....
Stewardship planning .....	.....	29,086	.....	.....	- 29,086
Total, Site stewardship .....	.....	90,374	61,288	+ 61,288	- 29,086
Environmental projects and operations:					
Long-term stewardship .....	38,596	.....	.....	- 38,596	.....
Transformation disposition .....	.....	.....	.....	.....	.....
Safeguards and security:					
Cybersecurity .....	121,286	122,511	122,511	+ 1,225	.....
Defense nuclear security .....	689,510	700,044	700,044	+ 10,534	.....
Construction:					
10-D-701 Security improvements project Y-12 Plant, Oak Ridge, TN .....	.....	49,000	49,000	+ 49,000	.....
08-D-701 Nuclear materials S&S upgrade project Los Alamos National Laboratory .....	44,620	.....	.....	- 44,620	.....
05-D-170 Project engineering and design [PED], various locations .....	1,078	.....	.....	- 1,078	.....
Subtotal, Construction .....	45,698	49,000	49,000	+ 3,302	.....
Subtotal, Defense nuclear security .....	735,208	749,044	749,044	+ 13,836	.....
Total, Safeguards and security .....	856,494	871,555	871,555	+ 15,061	.....

DEPARTMENT OF ENERGY—Continued

[In thousands of dollars]

	Enacted	Budget estimate	Committee recommendation	Committee recommendation compared to—	
				Enacted	Budget estimate
Congressionally directed projects .....	22,836	.....	.....	— 22,836	.....
Use of prior year balances .....	.....	.....	— 42,100	— 42,100	— 42,100
<b>TOTAL, WEAPONS ACTIVITIES .....</b>	<b>6,410,000</b>	<b>6,384,431</b>	<b>6,468,267</b>	<b>+ 58,267</b>	<b>+ 83,836</b>
<b>DEFENSE NUCLEAR NONPROLIFERATION</b>					
Nonproliferation and verification, R&D .....	345,332	297,300	337,300	— 8,032	+ 40,000
Construction:					
07—SC—05 Physical Science Facility, Pacific Northwest National Laboratory, Richland, WA .....	18,460	.....	.....	— 18,460	.....
Subtotal, Nonproliferation & verification R&D .....	363,792	297,300	337,300	— 26,492	+ 40,000
Nonproliferation and international security .....	150,000	207,202	187,202	+ 37,202	— 20,000
International nuclear materials protection and cooperation .....	400,000	552,300	552,300	+ 152,300	.....
Emergency appropriation, Public Law 111—32 .....	55,000	.....	.....	— 55,000	.....
Elimination of weapons-grade plutonium production program .....	141,299	24,507	24,507	— 116,792	.....
Fissile materials disposition:					
U.S. plutonium disposition .....	40,774	90,896	90,896	+ 50,122	.....
U.S. uranium disposition .....	.....	34,691	34,691	+ 34,691	.....
Supporting activities .....	.....	1,075	1,075	+ 1,075	.....
Construction:					
MOX fuel fabrication facilities:					
99—D—143 Mixed oxide fuel fabrication facility, Savannah River, SC .....	.....	504,238	504,238	+ 504,238	.....
99—D—141—02 Waste solidification building, Savannah River, SC .....	.....	70,000	70,000	+ 70,000	.....
Subtotal, Construction .....	.....	574,238	574,238	+ 574,238	.....
Subtotal, U.S. surplus fissile materials disposal .....	40,774	700,900	700,900	+ 660,126	.....
Russian surplus materials disposition .....	1,000	1,000	1,000	.....	.....

Total, Fissile materials disposition .....	41,774	701,900	701,900	+ 660,126	.....
Global threat reduction initiative .....	395,000	353,500	333,500	— 61,500	— 20,000
International nuclear fuel bank .....	.....	.....	.....	.....	.....
Congressionally directed projects .....	1,903	.....	.....	— 1,903	.....
Subtotal, Defense Nuclear Nonproliferation .....	1,548,768	2,136,709	2,136,709	+ 587,941	.....
Use of prior year balances .....	— 11,418	.....	.....	+ 11,418	.....
Subtotal, Defense Nuclear Nonproliferation .....	1,537,350	2,136,709	2,136,709	+ 599,359	.....
TOTAL, DEFENSE NUCLEAR NONPROLIFERATION .....	1,537,350	2,136,709	2,136,709	+ 599,359	.....
NAVAL REACTORS					
Naval reactors development .....	771,600	935,533	905,533	+ 133,933	— 30,000
Construction:					
10-D-093, Security upgrades, KAPL .....	.....	1,500	1,500	+ 1,500	.....
10-D-904, NRF infrastructure upgrades, Idaho .....	.....	700	700	+ 700	.....
09-D-190, PED, Infrastructure upgrades, KAPL .....	1,000	1,000	1,000	.....	.....
09-D-902, NRF Office Building #2, ECC upgrade, Idaho .....	8,300	6,400	6,400	— 1,900	.....
08-D-190 Project engineering and design, Expended Core Facility M-290 recovering discharge station, Naval Reactor Facility, ID .....	300	9,500	9,500	+ 9,200	.....
07-D-190 Materials research technology complex [MRTC] .....	12,400	11,700	11,700	— 700	.....
Subtotal, Construction .....	22,000	30,800	30,800	+ 8,800	.....
Total, Naval reactors development .....	793,600	966,333	936,333	+ 142,733	— 30,000
Program direction .....	34,454	36,800	36,800	+ 2,346	.....
TOTAL, NAVAL REACTORS .....	828,054	1,003,133	973,133	+ 145,079	— 30,000
OFFICE OF THE ADMINISTRATOR					
Office of the Administrator .....	415,878	431,074	431,074	+ 15,196	.....
Congressionally directed projects .....	23,312	.....	.....	— 23,312	.....
Use of prior year balances .....	.....	— 10,320	— 10,320	— 10,320	.....
TOTAL, OFFICE OF THE ADMINISTRATOR .....	439,190	420,754	420,754	— 18,436	.....

# DEPARTMENT OF ENERGY—Continued

[In thousands of dollars]

	Enacted	Budget estimate	Committee recommendation	Committee recommendation compared to—	
				Enacted	Budget estimate
TOTAL, NATIONAL NUCLEAR SECURITY ADMINISTRATION .....	9,214,594	9,945,027	9,998,863	+ 784,269	+ 53,836
DEFENSE ENVIRONMENTAL CLEANUP					
Closure Sites:					
Closure sites administration .....	13,209	8,225	8,225	— 4,984	.....
Fernald .....	2,100	.....	.....	— 2,100	.....
Miamisburg .....	30,574	33,243	33,243	+ 2,669	.....
Emergency appropriation, Public Law 111–5 .....	19,700	.....	.....	— 19,700	.....
Total, closure sites .....	65,583	41,468	41,468	— 24,115	.....
Hanford Site:					
Nuclear facility D&D, river corridor closure project .....	231,837	327,955	327,955	+ 96,118	.....
Nuclear material stabilization & disposition PFP .....	122,483	118,087	118,087	— 4,396	.....
SNF stabilization and disposition .....	122,171	55,325	95,325	— 26,846	+ 40,000
Subtotal, 2012 accelerated completions .....	476,491	501,367	541,367	+ 64,876	+ 40,000
Nuclear facility D&D—remainder of Hanford .....	89,903	70,250	70,250	— 19,653	.....
Richland community and regulatory support .....	19,620	21,940	21,940	+ 2,320	.....
Soil & water remediation—groundwater/vadose zone .....	182,532	176,766	229,766	+ 47,234	+ 53,000
Solid waste stabilization & disposition—200 area .....	198,430	132,757	159,757	— 38,673	+ 27,000
Subtotal, 2035 accelerated completions .....	490,485	401,713	481,713	— 8,772	+ 80,000
Emergency appropriations, Public Law 111–5:					
D&D river corridor .....	442,265	.....	.....	— 442,265	.....
D&D remainder of Hanford .....	740,120	.....	.....	— 740,120	.....
Soil and groundwater RL–100 .....	145,780	.....	.....	— 145,780	.....
Soil and groundwater RL–1041 .....	77,815	.....	.....	— 77,815	.....
TRU and solid waste .....	228,520	.....	.....	— 228,520	.....
Total, Hanford Site .....	2,601,476	903,080	1,023,080	— 1,578,396	+ 120,000

Idaho National Laboratory:					
SNF stabilization and disposition—2012 .....	14,334	14,768	28,768	+ 14,434	+ 14,000
Solid waste stabilization and disposition .....	191,237	137,000	137,000	— 54,237	.....
Radioactive liquid tank waste stabilization and disposition .....	46,025	95,800	132,800	+ 86,775	+ 37,000
06-D-401, Sodium bearing waste treatment project, ID .....	86,700	83,700	83,700	— 3,000	.....
Soil and water remediation—2012 .....	99,465	71,000	84,000	— 15,465	+ 13,000
Nuclear facility D&D .....	34,133	.....	.....	— 34,133	.....
Idaho community and regulatory support .....	3,867	3,900	3,900	+ 33	.....
D&D (Emergency appropriation, Public Law 111-5) .....	217,875	.....	.....	— 217,875	.....
TRU and solid waste (emergency appropriation, Public Law 111-5) .....	130,000	.....	.....	— 130,000	.....
Soil and groundwater (Emergency appropriation, Public Law 111-5) .....	120,000	.....	.....	— 120,000	.....
Total, Idaho National Laboratory .....	943,636	406,168	470,168	— 473,468	+ 64,000
NNSA:					
Lawrence Livermore National Laboratory .....	.....	910	910	+ 910	.....
NNSA Service Center/SPRU .....	19,443	17,938	17,938	— 1,505	.....
Nevada .....	75,674	65,674	65,674	— 10,000	.....
Nevada soil and groundwater (Emergency appropriation Public Law 111-5) .....	44,325	.....	.....	— 44,325	.....
California site support .....	.....	238	238	+ 238	.....
Sandia National Laboratories .....	3,000	2,864	2,864	— 136	.....
Los Alamos National Laboratory .....	222,734	189,000	204,000	— 18,734	+ 15,000
D&D acceleration (Emergency appropriation, Public Law 111-5) .....	118,200	.....	.....	— 118,200	.....
Soil and groundwater (Emergency appropriation, Public Law 111-5) .....	78,800	.....	.....	— 78,800	.....
SPRU recovery acct project (Emergency appropriation, Public Law 111-5) .....	31,775	.....	.....	— 31,775	.....
Total, NNSA sites and Nevada off-sites .....	593,951	276,624	291,624	— 302,327	+ 15,000
Oak Ridge Reservation:					
Building 3019 .....	58,000	38,900	38,900	— 19,100	.....
Nuclear facility D&D ORNL .....	64,825	38,900	38,900	— 25,925	.....
Nuclear facility D&D Y-12 .....	48,392	34,000	34,000	— 14,392	.....
Nuclear facility D&D, E. Tenn. Technology Park .....	105	100	100	— 5	.....
OR reservation community & regulatory support .....	6,100	6,253	6,253	+ 153	.....
Soil and water remediation—offsites .....	1,230	.....	.....	— 1,230	.....
Solid waste stabilization and disposition—2012 .....	84,183	35,615	35,615	— 48,568	.....
Emergency appropriations, Public Law 111-5:					
D&D Y-12 footprint reduction .....	327,000	.....	.....	— 327,000	.....
D7D ORNL footprint reduction .....	151,110	.....	.....	— 151,110	.....
TRU and solid waste .....	80,000	.....	.....	— 80,000	.....



# DEPARTMENT OF ENERGY—Continued

[In thousands of dollars]

	Enacted	Budget estimate	Committee recommendation	Committee recommendation compared to—	
				Enacted	Budget estimate
Total, Oak Ridge Reservation .....	820,945	153,768	153,768	— 667,177	.....
Office of River Protection:					
Waste treatment & immobilization plant:					
01–D–16A Low activity waste facility .....	160,000	100,000	100,000	— 60,000	.....
01–D–16B Analytical laboratory .....	65,000	55,000	55,000	— 10,000	.....
01–D–16C Balance of facilities .....	75,000	50,000	50,000	— 25,000	.....
01–D–16D High-level waste facility .....	125,000	160,000	160,000	+ 35,000	.....
01–D–16E Pretreatment facility .....	265,000	325,000	325,000	+ 60,000	.....
Subtotal, Waste treatment and immobilization plant .....	690,000	690,000	690,000	.....	.....
Tank Farm activities:					
Rad liquid tank waste stabil. and disposition .....	319,943	408,000	408,000	+ 88,057	.....
Tank infrastructure (Emergency appropriation, Public Law 111–5) .....	326,035	.....	.....	— 326,035	.....
Subtotal, Tank Farm activities .....	645,978	408,000	408,000	— 237,978	.....
Total, Office of River Protection .....	1,335,978	1,098,000	1,098,000	— 237,978	.....
Savannah River site:					
Nuclear material stabilization and disposition:					
Nuclear material stabilization and disposition .....	.....	385,310	385,310	+ 385,310	.....
Construction:					
08–D–414 Project engineering and design plutonium preparation facility, VL .....	.....	6,315	6,315	+ 6,315	.....
Subtotal, 2012 accelerated completions .....	.....	391,625	391,625	+ 391,625	.....
SR community and regulatory support .....	14,800	18,300	18,300	+ 3,500	.....
Nuclear material stabilization and disposition .....	339,843	.....	.....	— 339,843	.....
Spent nuclear fuel stabilization and disposition .....	24,108	38,768	38,768	+ 14,660	.....
Solid waste stabilization and disposition .....	62,599	.....	.....	— 62,599	.....
Soil and water remediation .....	71,967	.....	33,025	— 38,942	+ 33,025

Nuclear facility D&D .....	12,052			— 12,052	
Subtotal, 2035 accelerated completions .....	525,369	57,068	90,093	— 435,276	+ 33,025
Tank Farm activities:					
Rad liquid tank waste stabil. and disposition .....	546,250	527,138	527,138	— 19,112	
05–D–405, Salt waste processing facility .....	155,524	234,118	234,118	+ 78,594	
Subtotal, Tank farm activities .....	701,774	761,256	761,256	+ 59,482	
Emergency appropriations, Public Law 111–5:					
D&D P and R area .....	579,000			— 579,000	
D&D M and D area .....	130,000			— 130,000	
D&D soil and groundwater sitewide .....	365,400			— 365,400	
TRU and solid waste .....	541,000			— 541,000	
Total, Savannah River site .....	2,842,543	1,209,949	1,242,974	— 1,599,569	+ 33,025
Waste Isolation Pilot Plant:					
Operate WIPP .....	137,425	144,902	159,902	+ 22,477	+ 15,000
Emergency appropriation, Public Law 111–5 .....	172,375			— 172,375	
Central Characterization Project .....	38,206	13,730	13,730	— 24,476	
Transportation .....	28,170	33,851	33,851	+ 5,681	
Community and regulatory support .....	27,860	27,854	27,854	— 6	
Total, Waste Isolation Pilot Plant .....	404,036	220,337	235,337	— 168,699	+ 15,000
Program direction .....	309,807	355,000	355,000	+ 45,193	
Emergency appropriation, Public Law 111–5 .....	25,635			— 25,635	
Program support .....	33,930	34,000	34,000	+ 70	
Safeguards and Security:					
Waste Isolation Pilot Project .....	5,124	4,644	4,644	— 480	
Oak Ridge Reservation .....	27,020	32,400	32,400	+ 5,380	
West Valley .....	1,400	1,859	1,859	+ 459	
Paducah .....	8,196	8,190	8,190	— 6	
Richland/Hanford Site .....	79,765	82,771	82,771	+ 3,006	
Savannah River Site .....	134,336	132,064	149,064	+ 14,728	+ 17,000
Portsmouth .....	4,500	17,509	17,509	+ 13,009	
Total, Safeguards and Security .....	260,341	279,437	296,437	+ 36,096	+ 17,000
Technology development .....	32,320	55,000	55,000	+ 22,680	

# DEPARTMENT OF ENERGY—Continued

[In thousands of dollars]

	Enacted	Budget estimate	Committee recommendation	Committee recommendation compared to—	
				Enacted	Budget estimate
Uranium enrichment D&D fund contribution .....	463,000	463,000	463,000	.....	.....
ARRA defense unallocated (Emergency appropriation, Public Law 111–5) .....	34,270	.....	.....	– 34,270	.....
SUBTOTAL, DEFENSE ENVIRONMENTAL CLEAN UP .....	10,767,451	5,495,831	5,759,856	– 5,007,595	+ 264,025
Congressionally directed projects .....	17,908	.....	4,000	– 13,908	+ 4,000
Use of prior year balances .....	– 1,109	.....	.....	+ 1,109	.....
TOTAL, DEFENSE ENVIRONMENTAL CLEAN UP .....	10,784,250	5,495,831	5,763,856	– 5,020,394	+ 268,025
Appropriations .....	(5,657,250)	(5,495,831)	(5,763,856)	( + 106,606)	( + 268,025)
Emergency appropriations .....	(5,127,000)	.....	.....	( – 5,127,000)	.....
OTHER DEFENSE ACTIVITIES .....	.....	.....	.....	.....	.....
Health, safety and security:					
Health, safety and security .....	346,874	337,757	337,757	– 9,117	.....
Program direction .....	99,597	112,125	112,125	+ 12,528	.....
Total, Health, safety and security .....	446,471	449,882	449,882	+ 3,411	.....
Office of Legacy Management:					
Legacy management .....	174,397	177,618	177,618	+ 3,221	.....
Program direction .....	11,584	12,184	12,184	+ 600	.....
Total, Office of Legacy Management .....	185,981	189,802	189,802	+ 3,821	.....
Nuclear energy:					
Infrastructure:					
Idaho sitewide safeguards and security .....	78,811	.....	.....	– 78,811	.....
INL infrastructure O&M .....	.....	83,358	83,358	+ 83,358	.....
Mixed oxide fuel fabrication facility:					
Operations and maintenance .....	19,200	.....	.....	– 19,200	.....

Construction and other project costs:					
99-D-143 MOX fuel fabrication facility .....	467,808			- 467,808	
Subtotal, Mixed oxide fuel fabrication facility .....	487,008			- 487,008	
Total, Nuclear energy .....	565,819	83,358	83,358	- 482,461	
Defense-related administrative support .....	108,190	122,982	122,982	+ 14,792	
Office of Hearings and Appeals .....	6,603	6,444	6,444	- 159	
Subtotal, Other Defense Activities .....	1,313,064	852,468	852,468	- 460,596	
Congressionally directed projects .....	999		2,000	+ 1,001	+ 2,000
TOTAL, OTHER DEFENSE ACTIVITIES .....	1,314,063	852,468	854,468	- 459,595	+ 2,000
DEFENSE NUCLEAR WASTE DISPOSAL .....	143,000	98,400	98,400	- 44,600	
TOTAL, ATOMIC ENERGY DEFENSE ACTIVITIES .....	21,455,907	16,391,726	16,715,587	- 4,740,320	+ 323,861
Appropriations .....	(16,243,907)	(16,391,726)	(16,715,587)	(+ 471,680)	(+ 323,861)
Emergency appropriations .....	(5,212,000)			(- 5,212,000)	
POWER MARKETING ADMINISTRATIONS					
SOUTHEASTERN POWER ADMINISTRATION					
Operation and maintenance:					
Purchase power and wheeling .....	63,522	85,228	85,228	+ 21,706	
Program direction .....	7,420	7,638	7,638	+ 218	
Subtotal, Operation and maintenance .....	70,942	92,866	92,866	+ 21,924	
Less alternative financing [PPW] .....	- 14,002	- 14,422	- 14,422	- 420	
Offsetting collections .....	- 49,520	- 78,444	- 78,444	- 28,924	
Cost of implementing reclassification of receipts .....		7,638	7,638	+ 7,638	
Spending in excess of receipts (proposal) .....		1,000	1,000	+ 1,000	
TOTAL, SOUTHEASTERN POWER ADMINISTRATION .....	7,420	8,638	8,638	+ 1,218	

# DEPARTMENT OF ENERGY—Continued

[In thousands of dollars]

	Enacted	Budget estimate	Committee recommendation	Committee recommendation compared to—	
				Enacted	Budget estimate
SOUTHWESTERN POWER ADMINISTRATION					
Operation and maintenance:					
Operating expenses .....	12,865	12,775	12,775	— 90	.....
Purchase power and wheeling .....	46,000	48,000	48,000	+ 2,000	.....
Program direction .....	24,330	28,153	28,153	+ 3,823	.....
Construction .....	5,991	6,016	6,016	+ 25	.....
Subtotal, Operation and maintenance .....	89,186	94,944	94,944	+ 5,758	.....
Less alternative financing (for program direction) .....	— 2,200	.....	.....	+ 2,200	.....
Less alternative financing (ofr O&M) .....	— 9,381	.....	.....	+ 9,381	.....
Less alternative financing [PPW] .....	— 11,000	.....	.....	+ 11,000	.....
Less alternative financing (Const.) .....	— 3,191	.....	.....	+ 3,191	.....
Less alternative financing .....	.....	— 12,000	— 12,000	— 12,000	.....
Offsetting collections .....	— 35,000	— 69,868	— 69,868	— 34,868	.....
Cost of implementing reclassification of receipts .....	.....	31,868	31,868	+ 31,868	.....
TOTAL, SOUTHWESTERN POWER ADMINISTRATION .....	28,414	44,944	44,944	+ 16,530	.....
WESTERN AREA POWER ADMINISTRATION					
Operation and maintenance:					
Construction and rehabilitation .....	74,544	104,971	104,971	+ 30,427	.....
Operation and maintenance .....	52,365	57,159	57,159	+ 4,794	.....
Emergency appropriation, Public Law 111-5 .....	10,000	.....	.....	— 10,000	.....
Purchase power and wheeling .....	600,960	548,847	548,847	— 52,113	.....
Program direction .....	166,423	180,756	180,756	+ 14,333	.....
Utah mitigation and conservation .....	7,342	7,584	7,584	+ 242	.....
Subtotal, Operation and maintenance .....	911,634	899,317	899,317	— 12,317	.....
Less alternative financing (for O&M) .....	— 15,499	.....	.....	+ 15,499	.....
Less alternative financing (for Const.) .....	— 47,663	.....	.....	+ 47,663	.....

Less alternative financing (for Program direction) .....	— 15,800			+ 15,800	
Less alternative financing (for PPW) .....	— 197,842			+ 197,842	
Less alternative financing .....		— 288,920	— 288,920	— 288,920	
Offsetting collections (Public Law 108–477, Public Law 109–103) .....	— 403,118	— 349,807	— 349,807	+ 53,311	
Offsetting collections (Public Law 98–381) .....	— 3,366	— 3,879	— 3,879	— 513	
Offsetting collections (for program direction) .....		— 110,492	— 110,492	— 110,492	
Offsetting collections (for O&M) .....		— 37,038	— 37,038	— 37,038	
Cost of implementing reclassification of receipts .....		147,530	147,530	+ 147,530	
<b>TOTAL, WESTERN AREA POWER ADMINISTRATION .....</b>	<b>228,346</b>	<b>256,711</b>	<b>256,711</b>	<b>+ 28,365</b>	
<b>FALCON AND AMISTAD OPERATING AND MAINTENANCE FUND</b>					
Operation and maintenance .....	2,959	2,568	2,568	— 391	
Offsetting collections .....		— 2,348	— 2,348	— 2,348	
Cost of implementing reclassification of receipts .....		2,348	2,348	+ 2,348	
<b>TOTAL, POWER MARKETING ADMINISTRATIONS .....</b>	<b>267,139</b>	<b>312,861</b>	<b>312,861</b>	<b>+ 45,722</b>	
<b>FEDERAL ENERGY REGULATORY COMMISSION</b>					
Federal Energy Regulatory Commission .....	273,400	298,000	298,000	+ 24,600	
FERC revenues .....	— 273,400	— 298,000	— 298,000	— 24,600	
<b>GRAND TOTAL, DEPARTMENT OF ENERGY .....</b>	<b>73,537,001</b>	<b>28,407,846</b>	<b>27,398,221</b>	<b>— 46,138,780</b>	<b>— 1,009,625</b>
(Total amount appropriated) .....	(26,793,001)	(28,407,846)	(27,398,221)	(+ 605,220)	(— 1,009,625)
(Emergency appropriations) .....	(46,570,000)			(— 46,570,000)	
(Rescissions, including emergency funding) .....					
(Deferrals) .....	(149,000)			(— 149,000)	
(Advance appropriation) .....	(25,000)			(— 25,000)	
<b>SUMMARY OF ACCOUNTS</b>					
Energy efficiency and renewable energy .....	18,978,540	2,318,602	2,232,967	— 16,745,573	— 85,635
Electricity delivery and energy reliability .....	4,637,000	208,008	179,483	— 4,457,517	— 28,525
Nuclear energy .....	792,000	761,274	761,274	— 30,726	
Fossil Energy Research and Development .....	4,276,320	617,565	700,200	— 3,576,120	+ 82,635
Naval Petroleum & Oil Shale Reserves .....	19,099	23,627	23,627	+ 4,528	
Strategic petroleum reserves .....	205,000	229,073	259,073	+ 54,073	+ 30,000
Northeast home heating oil reserve .....	9,800	11,300	11,300	+ 1,500	
Energy Information Administration .....	110,595	133,058	110,595		— 22,463

# DEPARTMENT OF ENERGY—Continued

[In thousands of dollars]

	Enacted	Budget estimate	Committee recommendation	Committee recommendation compared to—	
				Enacted	Budget estimate
Non-defense environmental clean up .....	744,819	237,517	259,829	— 484,990	+ 22,312
Uranium enrichment D&D fund .....	925,503	359,377	588,322	— 337,181	+ 228,945
Science .....	6,372,636	4,941,682	4,898,832	— 1,473,804	— 42,850
Energy transformation acceleration fund .....	400,000	10,000	.....	— 400,000	— 10,000
Nuclear waste disposal .....	145,390	98,400	98,400	— 46,990	.....
Innovative technology loan guarantee program .....	6,465,000	1,500,000	.....	— 6,465,000	— 1,500,000
Advanced technology vehicles manufacturing loan pgm .....	7,510,000	20,000	20,000	— 7,490,000	.....
Departmental administration .....	272,643	302,071	293,684	+ 21,041	— 8,387
Revenues .....	— 117,317	— 119,740	— 119,740	— 2,423	.....
Total, Departmental administration .....	155,326	182,331	173,944	+ 18,618	— 8,387
Office of the Inspector General .....	66,927	51,445	51,927	— 15,000	+ 482
Atomic energy defense activities:					
National Nuclear Security Administration:					
Weapons activities .....	6,410,000	6,384,431	6,468,267	+ 58,267	+ 83,836
Defense nuclear nonproliferation .....	1,537,350	2,136,709	2,136,709	+ 599,359	.....
Naval reactors .....	828,054	1,003,133	973,133	+ 145,079	— 30,000
Office of the Administrator .....	439,190	420,754	420,754	— 18,436	.....
Subtotal, National Nuclear Security Administration .....	9,214,594	9,945,027	9,998,863	+ 784,269	+ 53,836
Defense environmental cleanup .....	10,784,250	5,495,831	5,763,856	— 5,020,394	+ 268,025
Other defense activities .....	1,314,063	852,468	854,468	— 459,595	+ 2,000
Defense nuclear waste disposal .....	143,000	98,400	98,400	— 44,600	.....
Total, Atomic energy defense activities .....	21,455,907	16,391,726	16,715,587	— 4,740,320	+ 323,861
Power marketing administrations:					
Southeastern Power Administration .....	7,420	8,638	8,638	+ 1,218	.....
Southwestern Power Administration .....	28,414	44,944	44,944	+ 16,530	.....
Western Area Power Administration .....	228,346	256,711	256,711	+ 28,365	.....

Falcon and Amistad operating and maintenance fund .....	2,959	2,568	2,568	— 391	.....
Total, Power marketing administrations .....	267,139	312,861	312,861	+ 45,722	.....
Federal Energy Regulatory Commission:					
Salaries and expenses .....	273,400	298,000	298,000	+ 24,600	.....
Revenues .....	— 273,400	— 298,000	— 298,000	— 24,600	.....
Total Summary of Accounts, Department of Energy .....	73,537,001	28,407,846	27,398,221	— 46,138,780	— 1,009,625
FUNCTION RECAP:					
NON-DEFENSE .....	52,166,094	12,016,120	10,682,634	— 41,483,460	— 1,333,486
DEFENSE .....	21,370,907	16,391,726	16,715,587	— 4,655,320	+ 323,861
Environmental management .....	(12,454,572)	(6,092,725)	(6,612,007)	(— 5,842,565)	(+ 519,282)
DEFENSE RELATED .....	(10,784,250)	(5,495,831)	(5,763,856)	(— 5,020,394)	(+ 268,025)
NON-DEFENSE .....	(1,670,322)	(596,894)	(848,151)	(— 822,171)	(+ 251,257)
Nuclear waste disposal .....	(288,390)	(196,800)	(196,800)	(— 91,590)	.....
DEFENSE RELATED .....	(143,000)	(98,400)	(98,400)	(— 44,600)	.....
NON-DEFENSE .....	(145,390)	(98,400)	(98,400)	(— 46,990)	.....



## GENERAL PROVISIONS—DEPARTMENT OF ENERGY

The following list of general provisions is recommended by the Committee. The recommendation includes several provisions which have been included in previous Energy and Water Appropriations Acts and new provisions as follows:

Section 301. Language is included under section 302, which prohibits the use of funds in this act to initiate a request for proposal of expression of interest for new programs which have not yet been presented to Congress in the annual budget submission and which have not yet been approved and funded by Congress.

Section 302. Language is included to address issues under section 3161 of Public Law 102-484.

Section 303. Language is included which permits the transfer and merger of unexpended balances of prior appropriations with appropriation accounts established in this bill.

Section 304. Language is included that prohibits the use of funds by the Bonneville Power Administration to enter into energy efficiency contracts outside its service area.

Section 305. This section establishes certain notice and competition requirements for Department of Energy user facilities.

Section 306. Language is included specifically authorizing intelligence activities pending enactment of the fiscal year 2008 Intelligence Authorization Act.

Section 307. Language included related to laboratory directed research and development.

Section 308. Language is included regarding transfer authority.

Section 309. The Committee has included a provision related to the Bonneville Power Administration Treasury account.

Section 310. The Committee has included a provision related to notification of funding awards.

Section 311. The Committee has included a provision related to pensions.

# TITLE IV

## INDEPENDENT AGENCIES

### APPALACHIAN REGIONAL COMMISSION

Appropriations, 2009 .....	\$75,000,000
Budget estimate, 2010 .....	76,000,000
Committee recommendation .....	76,000,000

Established in 1965, the Appalachian Regional Commission is an economic development agency composed of 13 Appalachian States and a Federal co-chair appointed by the President. For fiscal year 2010, the Committee recommends \$76,000,000 for the ARC.

The Committee recognizes the importance of trade and investment opportunities to the Appalachian Region and is encouraged by the findings in a report that Appalachian firms could find significant trade and investment opportunities, particularly in the energy, high technology, and transportation sectors in the Republic of Turkey and the surrounding region. In this regard, the Committee supports the Appalachian-Turkish Trade Project [ATTP], a project to promote opportunities to expand trade, encourage business interests, stimulate foreign studies, and to build a lasting and mutually meaningful relationship between Appalachian States and the Republic of Turkey, as well as the neighboring regions, such as Greece. The Committee commends the ARC for its leadership role in helping to implement the mission of the ATTP. The Committee expects the ARC to continue to be a prominent ATTP sponsor.

The Committee has included no earmarks in the ARC funds. The Commission allocates its funds by formula to its member States, based primarily on need. Under the Commission's formula system, earmarks out of ARC's base funding could come at the expense of those States that have no earmarks. Accordingly, the Committee directs that any earmarks in any State be taken from within that State's regular ARC allocation.

### DEFENSE NUCLEAR FACILITIES SAFETY BOARD

#### SALARIES AND EXPENSES

Appropriations, 2009 .....	\$25,000,000
Budget estimate, 2010 .....	26,086,000
Committee recommendation .....	26,086,000

For fiscal year 2010, the Committee recommends \$26,086,000, the same as the President's request, for the Defense Nuclear Facilities Safety Board [DNFSB]. This Board is responsible for evaluating the implementation of standards for design, construction, operation, and decommissioning of the Department of Energy's defense nuclear facilities. Based on these evaluations, the Board makes specific recommendations to the Secretary of Energy to en-

sure that both public and employee health and safety are protected. The Committee encourages the DNFSB to undertake the responsibility to provide cost estimates to accompany their recommendations.

#### DELTA REGIONAL AUTHORITY

Appropriations, 2009 .....	\$13,000,000
Budget estimate, 2010 .....	13,000,000
Committee recommendation .....	13,000,000

For the Delta Regional Authority, the Committee recommends \$13,000,000. The Delta Regional Authority was established to assist the eight State Mississippi Delta Region in obtaining basic infrastructure, transportation, skills training, and opportunities for economic development.

#### DENALI COMMISSION

Appropriations, 2009 .....	\$11,800,000
Budget estimate, 2010 .....	11,965,000
Committee recommendation .....	11,965,000

The Denali Commission is a Federal-State partnership responsible for promoting infrastructure development, job training, and other economic development services in rural areas throughout Alaska. For fiscal year 2010, the Committee recommends \$11,965,000.

#### NUCLEAR REGULATORY COMMISSION

##### SALARIES AND EXPENSES

Appropriations, 2009 .....	\$1,034,656,000
Budget estimate, 2010 .....	1,061,000,000
Committee recommendation .....	1,061,000,000

##### REVENUES

Appropriations, 2009 .....	-\$860,857,000
Budget estimate, 2010 .....	-878,102,000
Committee recommendation .....	-902,402,000

##### NET APPROPRIATION

Appropriations, 2009 .....	\$173,799,000
Budget estimate, 2010 .....	182,898,000
Committee recommendation .....	158,598,000

The Committee recommendation for the Nuclear Regulatory Commission for fiscal year 2010 is \$1,061,000,000. This amount is offset by estimated revenues of \$902,402,000 resulting in a net appropriation of \$158,598,000. The Committee has provided \$15,000,000 to the Nuclear Regulatory Commission to support its participation in an Integrated University Program as directed by section 313 of Public Law 111-8. The Committee recommends \$10,000,000 of this amount to be used to support university education programs relevant to the NRC mission. In addition, not less than \$5,000,000 of this amount will be used for grants to support research projects that do not align with programmatic missions but are critical to maintaining the discipline of nuclear science and engineering. The Committee expects the Commission to utilize a por-

tion of existing carryover balances to support license application reviews of any new reactor designs, including modular reactors.

#### OFFICE OF INSPECTOR GENERAL

##### GROSS APPROPRIATION

Appropriations, 2009 .....	\$10,860,000
Budget estimate, 2010 .....	10,102,000
Committee recommendation .....	10,860,000

##### REVENUES

Appropriations, 2009 .....	-\$9,774,000
Budget estimate, 2010 .....	-9,092,000
Committee recommendation .....	-9,774,000

##### NET APPROPRIATION

Appropriations, 2009 .....	\$1,086,000
Budget estimate, 2010 .....	1,010,000
Committee recommendation .....	1,086,000

The Committee recommends a net appropriation of \$1,086,000, an increase of \$76,000 over the budget request. The Committee recommends that the current no year funding authority of the Office of Inspector General be retained.

#### NUCLEAR WASTE TECHNICAL REVIEW BOARD

Appropriations, 2009 .....	\$3,811,000
Budget estimate, 2010 .....	3,891,000
Committee recommendation .....	3,891,000

The Nuclear Waste Technical Review Board was established to evaluate the scientific and technical validity of the Department of Energy's nuclear waste disposal program. The Board reports its findings no fewer than two times a year to Congress and to the Secretary of Energy. For fiscal year 2010, the Committee recommends \$3,891,000.

#### OFFICE OF THE FEDERAL COORDINATOR FOR ALASKA NATURAL GAS TRANSPORTATION PROJECTS

Appropriation, 2009 .....	\$4,400,000
Budget estimate, 2010 .....	4,466,000
Committee recommendation .....	4,466,000

The Office of the Federal Coordinator for Alaska Natural Gas Transportation Projects was established as an independent agency in the executive branch on December 13, 2006, pursuant to the Alaska Natural Gas Pipeline Act of 2004. The Committee recommends \$4,466,000, the same as the budget request.

#### TENNESSEE VALLEY AUTHORITY

##### OFFICE OF INSPECTOR GENERAL

##### GROSS APPROPRIATION

Appropriations, 2009 .....	.....
Budget estimate, 2010 .....	\$19,000,000
Committee recommendation .....	.....

## OFFSET FROM TENNESSEE VALLEY AUTHORITY FUND

Appropriations, 2009 .....	.....
Budget estimate, 2010 .....	—\$19,000,000
Committee recommendation .....	.....

The Committee recommendation does not include the administration's proposal to establish a congressionally funded Office of the Inspector General to oversee the Tennessee Valley Authority. In recent years, the TVA has funded the requests of the TVA-IG office out of power revenues and receipts. This process has worked well, and the Committee sees no compelling reason to change that mechanism for funding the TVA-IG.

## GENERAL PROVISION—INDEPENDENT AGENCIES

The following general provision is recommended by the Committee.

Section 401. The provision addresses an issue with the Delta Regional Authority.

TITLE V  
GENERAL PROVISIONS

The following list of general provisions are recommended by the Committee.

Section 501. The provision prohibits the use of any funds provided in this bill from being used to influence congressional action.

Section 502. The provision addresses transfer authority under this act.

COMPLIANCE WITH PARAGRAPH 7, RULE XVI, OF THE  
STANDING RULES OF THE SENATE

Paragraph 7 of rule XVI requires that Committee reports on general appropriations bills identify each Committee amendment to the House bill “which proposes an item of appropriation which is not made to carry out the provisions of an existing law, a treaty stipulation, or an act or resolution previously passed by the Senate during that session.”

The Committee recommends funding for the following programs or activities which currently lack authorization for fiscal year 2010:

The U.S. Army Corps of Engineers: General Investigations; Construction, General; Mississippi River and Tributaries; Operations and Maintenance; Formerly Utilized Sites Remedial Action Program;

Department of the Interior, Bureau of Reclamation;

Water and Related Resources;

Department of Energy: Energy Conservation and Supply Activities;

Office of Fossil Energy: Fossil Energy R&D, Clean Coal, Naval Petroleum and Oil Shale Research;

Health, Safety and Security;

Non-Defense Environmental Management;

Office of Science;

Department of Administration;

National Nuclear Security Administration: Weapons Activities; Defense Nuclear Nonproliferation; Naval Reactors; Office of the Administrator;

Defense Environmental Management, Defense Site Acceleration Completion;

Other Defense Activities;

Defense Nuclear Waste Fund;

Office of Security and Performance Assurance;

Federal Energy Regulatory Commission;

Power Marketing Administrations: Southeastern, Southwestern, Western Area; and

Energy Information Administration.

COMPLIANCE WITH PARAGRAPH 7(C), RULE XXVI, OF THE  
STANDING RULES OF THE SENATE

Pursuant to paragraph 7(c) of rule XXVI, on July 9, 2009, the Committee ordered reported an original bill (S. 1436) making appropriations for the energy and water development and related agencies for the fiscal year ending September 30, 2010, subject to amendment and consistent with the budget allocation, and authorized the chairman of the committee or the chairman of the subcommittee to offer the text of the Senate-reported bill as a committee amendment in the nature of a substitute to the House com-

panion measure, by a recorded vote of 30–0, a quorum being present. The vote was as follows:

Yeas

Nays

Chairman Inouye  
 Mr. Byrd  
 Mr. Leahy  
 Mr. Harkin  
 Ms. Mikulski  
 Mr. Kohl  
 Mrs. Murray  
 Mr. Dorgan  
 Mrs. Feinstein  
 Mr. Durbin  
 Mr. Johnson  
 Ms. Landrieu  
 Mr. Reed  
 Mr. Lautenberg  
 Mr. Nelson  
 Mr. Pryor  
 Mr. Tester  
 Mr. Specter  
 Mr. Cochran  
 Mr. Bond  
 Mr. McConnell  
 Mr. Shelby  
 Mr. Gregg  
 Mr. Bennett  
 Mrs. Hutchison  
 Mr. Brownback  
 Mr. Alexander  
 Ms. Collins  
 Mr. Voinovich  
 Ms. Murkowski

#### COMPLIANCE WITH PARAGRAPH 12, RULE XXVI, OF THE STANDING RULES OF THE SENATE

Paragraph 12 of rule XXVI requires that Committee reports on a bill or joint resolution repealing or amending any statute or part of any statute include “(a) the text of the statute or part thereof which is proposed to be repealed; and (b) a comparative print of that part of the bill or joint resolution making the amendment and of the statute or part thereof proposed to be amended, showing by stricken-through type and italics, parallel columns, or other appropriate typographical devices the omissions and insertions which would be made by the bill or joint resolution if enacted in the form recommended by the Committee.”

In compliance with this rule, changes in existing law proposed to be made by the bill are shown as follows: existing law to be omitted is enclosed in black brackets; new matter is printed in italic; and existing law in which no change is proposed is shown in roman.



**FORT PECK RESERVATION RURAL WATER SYSTEM ACT  
OF 2000, PUBLIC LAW 106-382**

**SEC. 9. AUTHORIZATION OF APPROPRIATIONS.**

(a) ASSINIBOINE AND SIOUX RURAL WATER SYSTEM.—There are authorized to be appropriated—

(1) to the Bureau of Reclamation [over a period of 10 fiscal years] *through fiscal year 2015*, \$124,000,000 for the planning, design, and construction of the Assiniboine and Sioux Rural Water System; and

(2) to the Bureau of Indian Affairs such sums as are necessary for the operation and maintenance of the Assiniboine and Sioux Rural Water System.

(b) DRY PRAIRIE RURAL WATER SYSTEM.—There is authorized to be appropriated, [over a period of 10 fiscal years] *through fiscal year 2015*, \$51,000,000 for the planning, design, and construction of the Dry Prairie Rural Water System.

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**CONSOLIDATED APPROPRIATIONS ACT, 2001, PUBLIC  
LAW 106-554**

**APPENDIX D—H.R. 5666**

**TITLE V—LOWER MISSISSIPPI RIVER  
REGION**

**SEC. 501. SHORT TITLE.**

\* \* \* \* \*

**SEC. 503. DELTA REGIONAL AUTHORITY.**

The Consolidated Farm and Rural Development Act (7 U.S.C.1921 et seq.) is amended by adding at the end the following:

**“Subtitle F—Delta Regional Authority**

**“SEC. 382A. DEFINITIONS.**

\* \* \* \* \*

**“SEC. 382B. DELTA REGIONAL AUTHORITY.**

“(a)

\* \* \* \* \*

“(c) VOTING.—

    [“(1) IN GENERAL.—A decision by the Authority shall require a majority vote of the Authority (not including any member representing a State that is delinquent under subsection (g)(2)(C)) to be effective.”]

    (1) IN GENERAL—VOTING.—A decision by the Authority shall require the affirmative vote of the Federal cochairperson and a majority of the State members (not including any member representing a State that is delinquent under subsection (g)(2)(C)) to be effective.

## FARM SECURITY AND RURAL INVESTMENT ACT OF 2002, PUBLIC LAW 107-171

### SEC. 2507. DESERT TERMINAL LAKES.

(a) \* \* \*

(1) be used by the Secretary of the Interior, acting through the Commissioner of Reclamation, to provide water to at-risk natural desert terminal lakes; [or]

(2) remain available until expended[.]; and

(3) for efforts consistent with researching, supporting, and conserving fish, wildlife, plant, and habitat resources in the Walker River Basin.

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## CONSOLIDATED APPROPRIATIONS RESOLUTION, 2003, PUBLIC LAW 108-7

SEC. 122. The non-Federal sponsor shall receive credit in an amount not to exceed [ "\$10,000,000" ] \$27,000,000 toward their share of the cost of Des Moines Recreational River and Greenbelt, Iowa, projects for work performed by the sponsor, or others on behalf of the sponsor, including planning, design, and construction performed after October 1, 2002, provided the Secretary of the Army, acting through the Chief of Engineers, determines that such work is completed in accordance with United States Army Corps of Engineers standards and procedures and is integral to the Des Moines Recreational River and Greenbelt project.

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## WATER SUPPLY, RELIABILITY, AND ENVIRONMENTAL IMPROVEMENT ACT, PUBLIC LAW 108-361

## TITLE I—CALIFORNIA WATER SECURITY AND ENVIRONMENTAL ENHANCEMENT

### SEC. 101. SHORT TITLE.

\* \* \* \* \*

### SEC. 103. BAY DELTA PROGRAM.

(a) \* \* \*

\* \* \* \* \*

(e) NEW AND EXPANDED AUTHORIZATIONS FOR FEDERAL AGENCIES.—

(1) IN GENERAL.—The heads of the Federal agencies described in this subsection are authorized to carry out the activities described in subsection (f) during each of fiscal years 2005 through [2010] 2015, in coordination with the Governor.

\* \* \* \* \*

(f) DESCRIPTION OF ACTIVITIES UNDER NEW AND EXPANDED AUTHORIZATIONS.—

(1) \* \* \*

\* \* \* \* \*

(3) \* \* \*

(A) \* \* \*

(B) REPORT.—Not later than 180 days after the date of enactment of this Act, the Secretary of the Army shall submit to the appropriate authorizing and appropriating committees of the Senate and the House of Representatives a report that describes the levee stability reconstruction projects and priorities that will be carried out under this title during each of fiscal years 2005 through [2010] 2015.

\* \* \* \* \*

#### SEC. 107. FEDERAL SHARE OF COSTS.

(a) IN GENERAL.—The Federal share of the cost of implementing the Calfed Bay-Delta Program for fiscal years 2005 through [2010] 2015 in the aggregate, as set forth in the Record of Decision, shall not exceed 33.3 percent.

\* \* \* \* \*

#### SEC. 109. AUTHORIZATION OF APPROPRIATION.

There are authorized to be appropriated to the Secretary and the heads of the Federal agencies to pay the Federal share of the cost of carrying out the new and expanded authorities described in subsections (e) and (f) of section 103 \$389,000,000 for the period of fiscal years 2005 through [2010] 2015, to remain available until expended.

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### ENERGY AND WATER DEVELOPMENT APPROPRIATIONS ACT, 2006, PUBLIC LAW 109-103

#### TITLE II

#### DEPARTMENT OF THE INTERIOR

##### GENERAL PROVISIONS, DEPARTMENT OF THE INTERIOR

SEC. 208. (a)(1) Using amounts made available under section 2507 of the Farm and Security Rural Investment Act of 2002 (43 U.S.C. 2211 note; Public Law 107-171), the Secretary shall provide [not more than] \$70,000,000 to the University of Nevada *or the National Fish and Wildlife Foundation. The Secretary may provide funds to the National Fish and Wildlife Foundation in advance without regard to when exenses are incurred. The funds shall be subject to the provisions of the National Wildlife Foundation Establishment Act, excluding subsection (a) of section 10 of the Act (16 U.S.C. 3709(a))*—

(A) to acquire from willing sellers land, water appurtenant to the land, and related interests in the Walker River Basin[, Nevada; and]; and

(B) to establish and administer an agricultural and natural resources center, the mission of which shall be to undertake research, restoration, and educational activities in the Walker River Basin relating to—

(i) innovative agricultural water conservation;

(ii) cooperative programs for environmental restoration;

(iii) fish and wildlife habitat restoration; and

- (iv) wild horse and burro research and adoption marketing~~].~~ *and*
- (C) to design and implement conservation and stewardship measures to address impacts from activities carried out—
  - (i) under subparagraph (A); and
  - (ii) in conjunction with willing landowners.

(2) In acquiring interests under paragraph (1)(A), the University of Nevada shall make acquisitions that ~~the University determines are the most beneficial to—~~ *the University of Nevada or the National Wildlife Foundation shall make acquisitions that the University or the Foundation determines to be the most beneficial to—*

## WATER RESOURCES DEVELOPMENT ACT OF 2007, PUBLIC LAW 110-114

### TITLE III—PROJECT-RELATED PROVISIONS

#### SEC. 3111. ANTELOPE CREEK, LINCOLN, NEBRASKA.

The project for flood damage reduction, Antelope Creek, Lincoln, Nebraska, authorized by section 101(b)(19) of the Water Resources Development Act of 2000 (114 Stat. 2578), is modified—

- (1) to direct the Secretary to credit, in accordance with section 221 of the Flood Control Act of 1970 (42 U.S.C. 1962d-5b), toward the non-Federal share of the cost of the project the cost of design and construction work carried out by the non-Federal interest for the project before, *on and after* the date of the partnership agreement for the project; and
- (2) \* \* \*

\* \* \* \* \*

### TITLE V—MISCELLANEOUS

#### SEC. 5067. IDAHO, MONTANA, RURAL NEVADA, NEW MEXICO, RURAL UTAH, AND WYOMING.

\* \* \* \* \*

- (1) \* \* \*

\* \* \* \* \*

(3) by striking subsection (h) and inserting the following:  
 “(h) AUTHORIZATION OF APPROPRIATIONS.—There is authorized to be appropriated to carry out this section for the period beginning with fiscal year 2001 \$150,000,000 for rural Nevada, ~~[\$25,000,000 for each of Montana and New Mexico]~~ *\$75,000,000 for Montana, \$25,000,000 for New Mexico*, \$55,000,000 for Idaho, ~~[\$50,000,000]~~ *\$100,000,000* for rural Utah, and \$30,000,000 for Wyoming. Such sums shall remain available until expended.”.

\* \* \* \* \*

**SEC. 5097. MISSISSIPPI.**

Section 592(g) of the Water Resources Development Act of 1999 (113 Stat. 380; 117 Stat. 1837) is amended by striking “\$100,000,000” and inserting “\$200,000,000”.

**BUDGETARY IMPACT OF BILL**

PREPARED IN CONSULTATION WITH THE CONGRESSIONAL BUDGET OFFICE PURSUANT TO SEC.  
308(a), PUBLIC LAW 93-344, AS AMENDED

[In millions of dollars]

	Budget authority		Outlays	
	Committee allocation	Amount of bill	Committee allocation	Amount of bill
Comparison of amounts in the bill with Committee allocations to its subcommittees of amounts in the Budget Resolution for 2010: Subcommittee on Energy and Water Development:				
Mandatory .....				
Discretionary .....	33,750	33,750	43,201	<sup>1</sup> 43,201
Projections of outlays associated with the recommendation:				
2010 .....				<sup>2</sup> 19,820
2011 .....				9,270
2012 .....				3,004
2013 .....				607
2014 and future years .....				804
Financial assistance to State and local governments for 2010 .....	NA	93	NA	19

<sup>1</sup> Includes outlays from prior-year budget authority.

<sup>2</sup> Excludes outlays from prior-year budget authority.

NA: Not applicable.

**DISCLOSURE OF CONGRESSIONALLY DIRECTED SPENDING ITEMS**

The Constitution vests in the Congress the power of the purse. The Committee believes strongly that Congress should make the decisions on how to allocate the people's money.

As defined in Rule XLIV of the Standing Rules of the Senate, the term “congressionally directed spending item” means a provision or report language included primarily at the request of a Senator, providing, authorizing, or recommending a specific amount of discretionary budget authority, credit authority, or other spending authority for a contract, loan, loan guarantee, grant, loan authority, or other expenditure with or to an entity, or targeted to a specific State, locality or congressional district, other than through a statutory or administrative, formula-driven, or competitive award process.

For each item, a Member is required to provide a certification that neither the Member nor the Senator's immediate family has a pecuniary interest in such congressionally directed spending item. Such certifications are available to the public on the website of the Senate Committee on Appropriations ([www.appropriations.senate.gov/senators.cfm](http://www.appropriations.senate.gov/senators.cfm)).

Following is a list of congressionally directed spending items included in the Senate recommendation discussed in this report, along with the name of each Senator who submitted a request to the Committee of jurisdiction for each item so identified. Neither

the Committee recommendation nor this report contains any limited tax benefits or limited tariff benefits as defined in rule XLIV.

# CONGRESSIONALLY DIRECTED SPENDING ITEMS

Agency	Account	Project title	Funding	Member
Corps of Engineers	Construction, General	ACEQUIAS IRRIGATION SYSTEM, NM	\$500,000	Bingaman, T. Udall
Corps of Engineers	Construction, General	ALAMOGORDO, NM	\$4,200,000	Bingaman, T. Udall
Corps of Engineers	Construction, General	ALASKA COASTAL EROSION, AK	\$2,000,000	Murkowski
Corps of Engineers	Construction, General	ASCENSION PARISH, LA [EJ]	\$1,000,000	Landrieu, Vitter
Corps of Engineers	Construction, General	ATLANTA ENVIRONMENTAL INFRASTRUCTURE, GA	\$1,000,000	Chambliss, Isakson
Corps of Engineers	Construction, General	ATLANTIC COAST OF MARYLAND, MD	\$4,500,000	Mikulski, Cardin
Corps of Engineers	Construction, General	BARNEGAT INLET TO LITTLE EGG HARBOR INLET, NJ	\$5,000,000	Lautenberg, Menendez
Corps of Engineers	Construction, General	BIG SIOUX RIVER, SIOUX FALLS, SD	\$4,000,000	Johnson, Thune
Corps of Engineers	Construction, General	BLUE RIVER BASIN, KANSAS CITY, MO	\$750,000	Bond
Corps of Engineers	Construction, General	BRECKENRIDGE, MN	\$5,000,000	Klobuchar
Corps of Engineers	Construction, General	BREVARD COUNTY, FL (MID AND SOUTH REACHES)	\$500,000	Bill Nelson, Martinez
Corps of Engineers	Construction, General	BRIGANTINE INLET TO GREAT EGG HARBOR INLET (ABSECON ISLAND), NJ	\$2,000,000	Lautenberg, Menendez
Corps of Engineers	Construction, General	BRIGANTINE INLET TO GREAT EGG HARBOR INLET, BRIGANTINE, NJ	\$80,000	Lautenberg, Menendez
Corps of Engineers	Construction, General	BRUNSWICK COUNTY BEACHES, NC	\$900,000	Burr, Hagan
Corps of Engineers	Construction, General	BURLINGTON HARBOR, VT	\$500,000	Leahy
Corps of Engineers	Construction, General	CALFED LEVEE STABILITY PROGRAM, CA	\$5,000,000	Feinstein
Corps of Engineers	Construction, General	CENTRAL CITY, FORT WORTH, UPPER TRINITY RIVER, TX	\$500,000	Hutchison, Cornyn
Corps of Engineers	Construction, General	CHESAPEAKE BAY ENVIRONMENTAL RESTORATION AND PROTECTION, MD, VA & PA	\$1,000,000	Cardin
Corps of Engineers	Construction, General	CHESAPEAKE BAY OYSTER RECOVERY, MD & VA	\$2,000,000	Mikulski, Cardin, Webb, Warner
Corps of Engineers	Construction, General	CHICAGO SHORELINE, IL	\$3,500,000	Durbin
Corps of Engineers	Construction, General	COMITE RIVER, LA	\$8,000,000	Landrieu, Vitter
Corps of Engineers	Construction, General	CORPUS CHRISTI SHIP CHANNEL, TX	\$2,000,000	Hutchison, Cornyn
Corps of Engineers	Construction, General	CORTE MADERA CREEK, CA	\$500,000	Feinstein
Corps of Engineers	Construction, General	DALLAS FLOODWAY EXTENSION, TRINITY RIVER, TX	\$22,000,000	Hutchison, Cornyn
Corps of Engineers	Construction, General	DELAWARE COAST FROM CAPE HELOPEN TO FENWICK ISLAND, BETHANY BEACH TO SOUTH BETHANY, DE.	\$1,750,000	Carper, Kaufman
Corps of Engineers	Construction, General	DELAWARE COAST FROM CAPE HELOPEN TO FENWICK ISLAND, REHOBETH BEACH AND DEWEY BEACH, DE.	\$2,000,000	Carper, Kaufman
Corps of Engineers	Construction, General	DELAWARE COAST PROTECTION, DE	\$390,000	Carper, Kaufman
Corps of Engineers	Construction, General	DELAWARE RIVER MAIN CHANNEL DEEPENING, NJ, PA, DE	\$10,000,000	Specter, Casey
Corps of Engineers	Construction, General	DES MOINES AND RACCOON RIVERS, IA	\$2,700,000	Harkin, Grassley
Corps of Engineers	Construction, General	DES MOINES RECREATIONAL RIVER AND GREENBELT, IA	\$4,300,000	Harkin, Grassley
Corps of Engineers	Construction, General	DES PLAINES RIVER, IL	\$3,500,000	Durbin
Corps of Engineers	Construction, General	DESOTO COUNTY REGIONAL WASTEWATER SYSTEM, MS	\$8,000,000	Cochran, Wicker
Corps of Engineers	Construction, General	EAST BATON ROUGE PARISH, LA [FC]	\$3,000,000	Landrieu, Vitter

Corps of Engineers .....	Construction, General .....	EAST BATON ROUGE, LA [EI] .....	\$500,000	Landrieu, Vitter
Corps of Engineers .....	Construction, General .....	EAST ST. LOUIS AND VICINITY, IL .....	\$540,000	Durbin
Corps of Engineers .....	Construction, General .....	FARMINGTON RECHARGE, CA .....	\$1,000,000	Feinstein
Corps of Engineers .....	Construction, General .....	FORT PECK CABIN CONVEYANCE, MT .....	\$1,869,000	Tester, Baucus
Corps of Engineers .....	Construction, General .....	GENESEE COUNTY, MI .....	\$600,000	Levin, Stabenow
Corps of Engineers .....	Construction, General .....	GEORGE W. KUHN DRAIN PROJECT, MI .....	\$300,000	Levin, Stabenow
Corps of Engineers .....	Construction, General .....	GRAND FORKS, ND—EAST GRAND FORKS, MN .....	\$2,617,000	Dorgan, Klobuchar
Corps of Engineers .....	Construction, General .....	GREAT EGG HARBOR TO TOWNSEDS INLET, NJ .....	\$3,500,000	Lautenberg, Menendez
Corps of Engineers .....	Construction, General .....	GREAT LAKES FISHERY AND ECOSYSTEM RESTORATION, MI .....	\$2,000,000	Voynovich, Levin, Stabenow
Corps of Engineers .....	Construction, General .....	GREENBRIER RIVER BASIN, WV .....	\$1,500,000	Byrd
Corps of Engineers .....	Construction, General .....	GUADALUPE RIVER, CA .....	\$304,000	Feinstein
Corps of Engineers .....	Construction, General .....	HACKENSACK MEADOWLANDS, NJ .....	\$500,000	Lautenberg, Menendez
Corps of Engineers .....	Construction, General .....	HAWAII WATER MANAGEMENT, HI .....	\$2,000,000	Inouye
Corps of Engineers .....	Construction, General .....	HOLES CREEK, WEST CARROLLTON, OHIO .....	\$1,656,000	Voynovich
Corps of Engineers .....	Construction, General .....	IAO STREAMS, HI .....	\$250,000	Inouye
Corps of Engineers .....	Construction, General .....	ISLAND CREEK BASIN IN AND AROUND LOGAN, WV, VA .....	\$21,750,000	Byrd
Corps of Engineers .....	Construction, General .....	JACKSONVILLE HARBOR, FL .....	\$950,000	Bill Nelson
Corps of Engineers .....	Construction, General .....	JAMES RIVER DEEPWATER TURNING BASIN, VA .....	\$2,234,000	Webb, Warner
Corps of Engineers .....	Construction, General .....	JOHNSON CREEK, UPPER TRINITY BASIN, ARLINGTON, TX .....	\$1,500,000	Hutchison, Cornyn
Corps of Engineers .....	Construction, General .....	JOSEPH G. MINISH WATERFRONT, NJ .....	\$3,000,000	Lautenberg, Menendez
Corps of Engineers .....	Construction, General .....	KAHUKU, HI .....	\$4,360,000	Inouye
Corps of Engineers .....	Construction, General .....	LAKE CHAMPLAIN WATERSHED INITIATE, VT .....	\$1,000,000	Leahy
Corps of Engineers .....	Construction, General .....	LAROSE TO GOLDEN MEADOW, LA [CG] .....	\$4,600,000	Landrieu, Vitter
Corps of Engineers .....	Construction, General .....	LEE COUNTY, FL .....	\$1,400,000	Bill Nelson, Martinez
Corps of Engineers .....	Construction, General .....	LEVISA AND TUG FORKS AND UPPER CUMBERLAND RIVER, WV, VA, KY .....	\$6,750,000	
Corps of Engineers .....	Construction, General .....	VIRGINIA .....	(\$4,000,000)	Webb, Warner
Corps of Engineers .....	Construction, General .....	WEST VIRGINIA .....	(\$2,750,000)	Byrd
Corps of Engineers .....	Construction, General .....	LIVINGSTON PARISH, LA [EI] .....	\$500,000	Landrieu, Vitter
Corps of Engineers .....	Construction, General .....	LOWER MUD RIVER, MILTON, WV .....	\$1,955,000	Byrd
Corps of Engineers .....	Construction, General .....	MERAMEC RIVER BASIN, VALLEY CITY LEVEE, MO .....	\$1,525,000	Bond
Corps of Engineers .....	Construction, General .....	MID VALLEY AREA LEVEE RECONSTRUCTION, CA .....	\$2,000,000	Feinstein
Corps of Engineers .....	Construction, General .....	MIDDLE RIO GRANDE FLOOD PROTECTION, BERNALILLO TO BELE, NM .....	\$800,000	Bingaman, T. Udall
Corps of Engineers .....	Construction, General .....	MISSISSIPPI ENVIRONMENTAL INFRASTRUCTURE, MS .....	\$10,000,000	Cochran, Wicker
Corps of Engineers .....	Construction, General .....	MISSOURI AND MIDDLE MISSISSIPPI RIVERS ENHANCEMENT, MO .....	\$1,000,000	Harkin, Grassley
Corps of Engineers .....	Construction, General .....	MISSOURI RIVER LEVEE SYSTEM (L-385), MO, IA, NE, KS .....	\$2,500,000	Bond
Corps of Engineers .....	Construction, General .....	MISSOURI RIVER RESTORATION, ND .....	\$300,000	Conrad
Corps of Engineers .....	Construction, General .....	MT. ZION MILL POND DAM, FULTON COUNTY, IN .....	\$575,000	Lugar
Corps of Engineers .....	Construction, General .....	MUDDY RIVER, MA .....	\$1,000,000	Kennedy, Kerry
Corps of Engineers .....	Construction, General .....	MURRIETA CREEK, CA .....	\$2,000,000	Feinstein, Boxer
Corps of Engineers .....	Construction, General .....	NEGAUNEE, MI .....	\$1,000,000	Levin, Stabenow



CONGRESSIONALLY DIRECTED SPENDING ITEMS—Continued

Agency	Account	Project title	Funding	Member
Corps of Engineers	Construction, General	NEW YORK CITY WATERSHED, NY	\$1,000,000	Schumer, Gillibrand
Corps of Engineers	Construction, General	NEW YORK STATE CANAL, NY	\$1,000,000	Schumer, Gillibrand
Corps of Engineers	Construction, General	NORFOLK HARBOR AND CHANNELS (DEEPENING), VA	\$1,000,000	Webb, Warner
Corps of Engineers	Construction, General	NORTH DAKOTA ENVIRONMENTAL INFRASTRUCTURE, ND	\$15,000,000	Dorgan
Corps of Engineers	Construction, General	NUTWOOD DRAINAGE AND LEVEE DISTRICT, IL	\$300,000	Durbin
Corps of Engineers	Construction, General	OHIO EL, OH	\$1,000,000	Voinovich, Brown
Corps of Engineers	Construction, General	ONONDAGA LAKE, NY	\$1,000,000	Schumer, Gillibrand
Corps of Engineers	Construction, General	ORCHARD BEACH, BRONX, NY	\$1,000,000	Schumer, Gillibrand
Corps of Engineers	Construction, General	PANAMA CITY BEACHES, FL	\$500,000	Bill Nelson
Corps of Engineers	Construction, General	PASSAIC RIVER BASIN FLOOD MGMT, NJ	\$1,000,000	Lautenberg, Menendez
Corps of Engineers	Construction, General	PLACER COUNTY, CA	\$2,000,000	Feinstein, Boxer
Corps of Engineers	Construction, General	POPLAR ISLAND, MD	\$350,000	Mikulski, Cardin
Corps of Engineers	Construction, General	PUGET SOUND AND ADJACENT WATERS RESTORATION, WA	\$200,000	Murray, Cantwell
Corps of Engineers	Construction, General	RAMAPO RIVER AT MAHWAH AND SUFFERN, NJ	\$200,000	Lautenberg, Menendez
Corps of Engineers	Construction, General	RARITAN BAY AND SANDY HOOK BAY, NJ	\$2,000,000	Lautenberg, Menendez
Corps of Engineers	Construction, General	RARITAN BAY AND SANDY HOOK BAY, PORT MONMOUTH, NJ	\$2,000,000	Lautenberg, Menendez
Corps of Engineers	Construction, General	RED RIVER BASIN CHLORIDE CONTROL, TX & OK	\$1,000,000	Inhofe
Corps of Engineers	Construction, General	RED RIVER BELOW DENISON DAM, LA, AR & TX	\$2,000,000	Landrieu, Lincoln, Pryor
Corps of Engineers	Construction, General	RED RIVER EMERGENCY BANK PROTECTION, AR & TX	\$2,000,000	Landrieu, Pryor, Lincoln
Corps of Engineers	Construction, General	RICHMOND CSO, VA	\$150,000	Webb, Warner
Corps of Engineers	Construction, General	ROSEAU, MN	\$2,500,000	Klobuchar
Corps of Engineers	Construction, General	RURAL IDAHO	\$2,000,000	Crapo/Risch
Corps of Engineers	Construction, General	RURAL MONTANA, MT	\$5,000,000	Tester, Baucus
Corps of Engineers	Construction, General	RURAL NEVADA [EI], NV	\$15,000,000	Reid, Ensign
Corps of Engineers	Construction, General	RURAL UTAH, UT [EI]	\$20,000,000	Bennett
Corps of Engineers	Construction, General	SACRAMENTO RIVER, GLENN-COLUSA IRRIGATION DISTRICT, CA	\$500,000	Feinstein
Corps of Engineers	Construction, General	SAN ANTONIO CHANNEL IMPROVEMENT, TX	\$5,000,000	Hutchison, Cornyn
Corps of Engineers	Construction, General	SAN LUIS REY RIVER, CA	\$2,500,000	Feinstein
Corps of Engineers	Construction, General	SANDY HOOK TO BARNEGAT INLET, NJ	\$2,000,000	Lautenberg, Menendez
Corps of Engineers	Construction, General	SAULT STE MARIE REPLACEMENT LOCK, MI	\$1,000,000	Levin, Stabenow
Corps of Engineers	Construction, General	SHOALWATER BAY SHORELINE, WA	\$5,000,000	Murray
Corps of Engineers	Construction, General	SOUTHWEST VALLEY ALBUQUERQUE, NM	\$4,000,000	Bingaman, T. Udall
Corps of Engineers	Construction, General	SWOPE PARK INDUSTRIAL AREA, KANSAS CITY, MO	\$4,000,000	Bond
Corps of Engineers	Construction, General	TAHOE BASIN RESTORATION, CA	\$3,000,000	Reid, Feinstein, Ensign
Corps of Engineers	Construction, General	TAMPA HARBOR, FL	\$500,000	Bill Nelson, Martinez
Corps of Engineers	Construction, General	TOWNSENDS INLET TO CAPE MAY INLET, NJ	\$2,000,000	Lautenberg, Menendez

Corps of Engineers .....	Construction, General .....	TURKEY CREEK BASIN, KS & MO .....	\$1,000,000	Roberts, Brownback, Bond
Corps of Engineers .....	Construction, General .....	TUSCALOOSA, AL .....	\$10,000,000	Shelby
Corps of Engineers .....	Construction, General .....	UNALASKA, AK .....	\$2,000,000	Murkowski, Begich
Corps of Engineers .....	Construction, General .....	UPPER GUADALUPE RIVER, CA .....	\$2,000,000	Feinstein
Corps of Engineers .....	Construction, General .....	WYOMING VALLEY (LEEVE RAISING), PA .....	\$1,200,000	Specter, Casey
Corps of Engineers .....	Construction, General .....	YUBA RIVER BASIN, CA .....	\$2,000,000	Feinstein
Corps of Engineers .....	Construction, General .....	CONSTRUCTION GENERAL ITEMS NOT LISTED UNDER STATES .....		
Corps of Engineers .....	Construction, General .....	AQUATIC PLANT CONTROL .....		
Corps of Engineers .....	Construction, General .....	Guntersville Lake Hydrilla/Milfoil .....	\$150,000	Sessions
Corps of Engineers .....	Construction, General .....	Fife Lake Aquatic Weed Control, MI .....	\$145,000	Levin, Stabenow
Corps of Engineers .....	Construction, General .....	Black Lake, Ogdensburg, NY .....	\$100,000	Schumer
Corps of Engineers .....	Construction, General .....	Sodus Bay, NY .....	\$100,000	Schumer
Corps of Engineers .....	Construction, General .....	Lake Chautauqua, Jamestown, NY .....	\$50,000	Schumer
Corps of Engineers .....	Construction, General .....	Lake Champlain, VT .....	\$500,000	Leahy
Corps of Engineers .....	Construction, General .....	CONTINUING AUTHORITIES PROGRAM .....		
Corps of Engineers .....	Construction, General .....	AQUATIC ECOSYSTEM RESTORATION (SECTION 206) .....		
Corps of Engineers .....	Construction, General .....	Upper York Creek Dam Removal, CA .....		Feinstein
Corps of Engineers .....	Construction, General .....	Tamarisk Eradication along the Colorado River, CO .....		M. Udall, Bennet
Corps of Engineers .....	Construction, General .....	Mill River Restoration, Stamford, CT .....		Lieberman
Corps of Engineers .....	Construction, General .....	Chattahoochee Fall-Line Ecosystem Restoration Project, GA .....		Chambliss
Corps of Engineers .....	Construction, General .....	Paradise Creek, ID .....		Crapo/Risch
Corps of Engineers .....	Construction, General .....	Chariton River/Rathbun Lake, IA .....		Harkin, Grassley
Corps of Engineers .....	Construction, General .....	Clear Creek and Iowa River, Johnson County, IA .....		Harkin, Grassley
Corps of Engineers .....	Construction, General .....	Duck Creek, Davenport, IA .....		Harkin, Grassley
Corps of Engineers .....	Construction, General .....	Whitebreast Creek Watershed, IA .....		Harkin, Grassley
Corps of Engineers .....	Construction, General .....	Buras Marina, LA .....		Landrieu
Corps of Engineers .....	Construction, General .....	False River Ecosystem Restoration, Point Coupee, LA .....		Landrieu
Corps of Engineers .....	Construction, General .....	Lake Killarney, Louisiana State Penitentiary, LA .....		Landrieu
Corps of Engineers .....	Construction, General .....	Zemurray Park Lake Restoration, Tangipahoa Parish, LA .....		Landrieu
Corps of Engineers .....	Construction, General .....	Milford Pond Restoration, Milford, MA .....		Kennedy, Kerry
Corps of Engineers .....	Construction, General .....	Deep Run/Tiber Hudson, Howard County, MD .....		Cardin
Corps of Engineers .....	Construction, General .....	Dog Island Shoals, MD .....		Cardin
Corps of Engineers .....	Construction, General .....	Greenbury Point, MD .....		Cardin
Corps of Engineers .....	Construction, General .....	North Beach, MD .....		Mikulski
Corps of Engineers .....	Construction, General .....	Northwest Branch, Anacostia River, MD .....		Cardin
Corps of Engineers .....	Construction, General .....	Paint Branch Fish Passage, MD .....		Cardin
Corps of Engineers .....	Construction, General .....	Painter Creek, MN .....		Klobuchar
Corps of Engineers .....	Construction, General .....	Musconetcong River Dam Removals, NJ .....		Lautenberg, Menendez
Corps of Engineers .....	Construction, General .....	Blue Hole Lake State Park, NM .....		Bingaman, T. Udall
Corps of Engineers .....	Construction, General .....	Janes-Wallace Memorial Dam, Santa Rosa, NM .....		Bingaman, T. Udall

CONGRESSIONALLY DIRECTED SPENDING ITEMS—Continued

Agency	Account	Project title	Funding	Member
Corps of Engineers	Construction, General	Kings Park, NY		Schumer, Gillibrand
Corps of Engineers	Construction, General	Mud Creek, Great South Bay, NY		Schumer, Gillibrand
Corps of Engineers	Construction, General	Soundview Park, Bronx, NY		Schumer
Corps of Engineers	Construction, General	Spring Creek, NY		Schumer, Gillibrand
Corps of Engineers	Construction, General	Concord Streams Restoration, NC		Burr, Hagan
Corps of Engineers	Construction, General	Western Cary Stream Restoration, Cary, NC		Burr, Hagan
Corps of Engineers	Construction, General	Codorus Creek Watershed Restoration, PA		Casey
Corps of Engineers	Construction, General	Narrow River, RI		Reed
Corps of Engineers	Construction, General	Winneapaug Pond Restoration, RI		Reed
Corps of Engineers	Construction, General	BENEFICIAL USES OF DREDGED MATERIAL (SECTION 204, 207, 933)		
Corps of Engineers	Construction, General	Houma Navigation Canal Barrier Island Restoration, LA		Landrieu
Corps of Engineers	Construction, General	NJHWW, Dredged Hole 35, NJ		Lautenberg, Menendez
Corps of Engineers	Construction, General	FLOOD CONTROL PROJECTS (SECTION 205)		
Corps of Engineers	Construction, General	Indian Bayou, AR		Pryor, Lincoln
Corps of Engineers	Construction, General	Cosgrove Creek, Calaveras County, CA		Feinstein
Corps of Engineers	Construction, General	Las Gallinas Creek/Santa Venetia Levee, CA		Feinstein
Corps of Engineers	Construction, General	Pennsylvania Avenue Improvement, DE		Carper, Kaufman
Corps of Engineers	Construction, General	Indian/Dry Creek Cedar Rapids, IA		Harkin, Grassley
Corps of Engineers	Construction, General	Winnebago River, Mason City, IA		Harkin, Grassley
Corps of Engineers	Construction, General	Concordia, KS		Roberts
Corps of Engineers	Construction, General	Neodesha, KS		Roberts
Corps of Engineers	Construction, General	Sedgwick, KS		Roberts
Corps of Engineers	Construction, General	Hopkinsville Dry-Dam, KY		McConnell, Bunning
Corps of Engineers	Construction, General	North River, Peabody, MA		Kennedy, Kerry
Corps of Engineers	Construction, General	McKinney Bayou, Tunica County, MS		Cochran, Wicker
Corps of Engineers	Construction, General	Blacksnake Creek, St. Joseph, MO		Bond
Corps of Engineers	Construction, General	Hatch, NM		Bingaman, T. Udall
Corps of Engineers	Construction, General	Assunpink Creek, Hamilton Township, Mercer County, NJ		Lautenberg, Menendez
Corps of Engineers	Construction, General	Jackson Brook, NJ		Lautenberg, Menendez
Corps of Engineers	Construction, General	Pennsville, NJ		Menendez
Corps of Engineers	Construction, General	Port Jervis, NY		Schumer, Gillibrand
Corps of Engineers	Construction, General	Philadelphia Shipyard Sea Wall, Philadelphia, PA		Specter, Casey
Corps of Engineers	Construction, General	East Providence, RI		Whitehouse
Corps of Engineers	Construction, General	NAVIGATION PROGRAM (SECTION 107)		
Corps of Engineers	Construction, General	Oyster Point Marina/Park Breakwater, CA		Feinstein
Corps of Engineers	Construction, General	Napolean Avenue Container Terminal Access, New Orleans, LA		Landrieu

Corps of Engineers .....	Construction, General .....	Bass Harbor, ME .....	Collins
Corps of Engineers .....	Construction, General .....	Rhodes Point, Somerset Co, MD .....	Cardin
Corps of Engineers .....	Construction, General .....	Woods Hole, Great Harbor, Woods Hole, MA .....	Kennedy, Kerry
Corps of Engineers .....	Construction, General .....	Northwestern Michigan, Traverse City, MI .....	Levin, Stabenow
Corps of Engineers .....	Construction, General .....	Hampton Harbor, NH .....	Gregg, Shaheen
Corps of Engineers .....	Construction, General .....	Delaware River, Fairless Turning Basin, PA .....	Specter, Casey
Corps of Engineers .....	Construction, General .....	Charlestown Breachway and Inlet, RI .....	Reed
Corps of Engineers .....	Construction, General .....	Point Judith Harbor, Expansion Study, RI .....	Reed
Corps of Engineers .....	Construction, General .....	Northwest Tennessee Regional Harbor, TN .....	Alexander, Coker
Corps of Engineers .....	Construction, General .....	Tangier Island Jetty, VA .....	Webb, Warner
Corps of Engineers .....	Construction, General .....	MITIGATION OF SHORE DAMAGES (SECTION 111) .....	
Corps of Engineers .....	Construction, General .....	Mattituck Harbor, NY .....	Schumer, Gillibrand
Corps of Engineers .....	Construction, General .....	PROJECT MODS FOR IMPROVEMENT OF THE ENVIRONMENT (SECTION 1135) .....	
Corps of Engineers .....	Construction, General .....	Lower Cache Restoration, AR .....	Pryor, Lincoln
Corps of Engineers .....	Construction, General .....	Millwood Lake, Grassy Lake, AR .....	Pryor, Lincoln
Corps of Engineers .....	Construction, General .....	Rathbun Lake Habitat Restoration, IA .....	Harkin, Grassley
Corps of Engineers .....	Construction, General .....	Bayou Desiard, Monroe, LA .....	Landrieu
Corps of Engineers .....	Construction, General .....	Houma Navigation Canal Mile 12-31.4 Restoration, Terrebonne Parish, LA .....	Landrieu
Corps of Engineers .....	Construction, General .....	Morganza Fore-Bay Restoration, LA .....	Landrieu
Corps of Engineers .....	Construction, General .....	Lincoln Park West, Ecosystem Restoration Study, NJ .....	Lautenberg, Menendez
Corps of Engineers .....	Construction, General .....	Las Cruces Dam Environmental Restoration, Dona Ana County, NM .....	Bingaman, T. Udall
Corps of Engineers .....	Construction, General .....	Northport Harbor, NY .....	Schumer, Gillibrand
Corps of Engineers .....	Construction, General .....	Smokes Creek, NY .....	Schumer, Gillibrand
Corps of Engineers .....	Construction, General .....	Lake Champlain Lamprey Barriers, VT .....	Leahy
Corps of Engineers .....	Construction, General .....	SHORE PROTECTION (SECTION 103) .....	
Corps of Engineers .....	Construction, General .....	Bay Farm Island, CA (Bay Farm Dike, CA) .....	Feinstein
Corps of Engineers .....	Construction, General .....	Goleta Beach, CA .....	Feinstein
Corps of Engineers .....	Construction, General .....	Pismo Beach, CA .....	Feinstein
Corps of Engineers .....	Construction, General .....	Prospect Beach, West Haven, CT .....	Lieberman
Corps of Engineers .....	Construction, General .....	Seaside Park, Ocean County, NJ .....	Lautenberg, Menendez
Corps of Engineers .....	Construction, General .....	ESTUARY RESTORATION PROGRAM (PUBLIC LAW 106-457) .....	\$1,000,000 Feinstein
Corps of Engineers .....	Construction, General .....	SHORELINE EROSION CONTROL DEVELOPMENT AND DEMONSTRATION .....	\$1,000,000 Feinstein
Corps of Engineers .....	General Investigations .....	ABILENE, TX (BRAZOS RIVER BASIN—ELM CREEK) .....	\$190,000 Cornyn
Corps of Engineers .....	General Investigations .....	ALA WAI CANAL, OAHU, HI .....	\$233,000 Inouye, Akaka
Corps of Engineers .....	General Investigations .....	AMAZON CREEK, OR .....	\$320,000 Wyden, Merkley
Corps of Engineers .....	General Investigations .....	ANACOSTIA RIVER AND TRIBUTARIES COMPREHENSIVE PLAN, MD .....	\$321,000 Mikulski, Cardin
Corps of Engineers .....	General Investigations .....	BALTIMORE METRO WATER RESOURCES—PATAPSCO URBAN RIVER REST, MD ..	\$100,000 Cardin
Corps of Engineers .....	General Investigations .....	BLOOMSBURG, PA .....	\$130,000 Specter, Casey
Corps of Engineers .....	General Investigations .....	BOGUE BANKS, NC .....	\$135,000 Burr, Hagan

CONGRESSIONALLY DIRECTED SPENDING ITEMS—Continued

Agency	Account	Project title	Funding	Member
Corps of Engineers	General Investigations	BOSSIER PARISH, LA	\$150,000	Landrieu, Vitter
Corps of Engineers	General Investigations	BRONX RIVER BASIN, NY	\$130,000	Schumer
Corps of Engineers	General Investigations	BRUSH CREEK BASIN, KS & MO	\$242,000	Bond, Brownback, Roberts
Corps of Engineers	General Investigations	CACHE LA POUDE, CO	\$50,000	M. Udall
Corps of Engineers	General Investigations	CALCASIEU RIVER AND PASS, LA	\$675,000	Landrieu, Vitter
Corps of Engineers	General Investigations	CALCASIEU RIVER BASIN, LA	\$153,000	Landrieu, Vitter
Corps of Engineers	General Investigations	CEDAR RIVER TIME CHECK AREA, CEDAR RAPIDS, IA	\$750,000	Harkin, Grassley
Corps of Engineers	General Investigations	CENTRAL VALLEY INTEGRATED FLOOD MANAGEMENT STUDY (SACRAMENTO-SAN JOAQUIN COMPREHENSIVE).	\$425,000	Feinstein
Corps of Engineers	General Investigations	CENTRALIA, WA	\$1,000,000	Murray
Corps of Engineers	General Investigations	CHEHALIS RIVER BASIN, WA	\$1,000,000	Murray
Corps of Engineers	General Investigations	CHERRY RIVER BASIN, WV	\$600,000	Byrd
Corps of Engineers	General Investigations	CHESAPEAKE BAY SHORELINE, MARYLAND COASTAL MANAGEMENT, MD	\$170,000	Cardin
Corps of Engineers	General Investigations	CHESAPEAKE BAY SUSQUEHANNA RESERVOIR SEDIMENT MANAGEMENT, MD	\$200,000	Mikulski, Cardin
Corps of Engineers	General Investigations	CHOWAN RIVER BASIN, VA	\$215,000	Webb, Warner
Corps of Engineers	General Investigations	CLINCH RIVER WATERSHED, VA	\$130,000	Webb, Warner
Corps of Engineers	General Investigations	CONNECTICUT RIVER ECOSYSTEM RESTORATION, CT, MA, NH & VT	\$380,000	Dodd, Lieberman, Kennedy, Kerry
Corps of Engineers	General Investigations	COYOTE DAM, CA	\$100,000	Feinstein
Corps of Engineers	General Investigations	CROSS LAKE, LA	\$100,000	Landrieu, Vitter
Corps of Engineers	General Investigations	DALLAS FLOODWAY, UPPER TRINITY RIVER BASIN, TX	\$2,125,000	Hutchison, Cornyn
Corps of Engineers	General Investigations	DELAWARE RIVER BASIN, PINE KNOT, PA	\$130,000	Specter
Corps of Engineers	General Investigations	DELAWARE RIVER DREDGED MATERIAL UTILIZATION, PA, DE & NJ	\$166,000	Lautenberg, Specter, Kaufman, Menendez
Corps of Engineers	General Investigations	DISMAL SWAMP AND DISMAL SWAMP CANAL, VA	\$78,000	Webb, Warner
Corps of Engineers	General Investigations	EASTERN SHORE, MID-CHESAPEAKE BAY ISLAND, MD	\$233,000	Mikulski, Cardin
Corps of Engineers	General Investigations	ELLIOTT BAY SEAWALL, WA	\$255,000	Murray, Cantwell
Corps of Engineers	General Investigations	FLAGER COUNTY, FL	\$496,000	Bill Nelson, Martinez
Corps of Engineers	General Investigations	FOUR MILE RUN, VA	\$100,000	Webb, Warner
Corps of Engineers	General Investigations	GATHRIGHT DAM AND LAKE MOOMAW, VA	\$255,000	Webb, Warner
Corps of Engineers	General Investigations	GRAND (NEOSHO) RIVER BASIN WATERSHED, OK, MO, KS	\$162,000	Roberts
Corps of Engineers	General Investigations	GRAYSON AND MURDERER'S WALNUT CREEK BASIN, CA	\$100,000	Feinstein
Corps of Engineers	General Investigations	GREAT LAKES REMEDIAL ACTION PLANS (RAP), MI	\$850,000	Voinovich, Stabenow
Corps of Engineers	General Investigations	HOCKING RIVER BASIN, MONDAY CREEK, OH	\$437,000	Voinovich
Corps of Engineers	General Investigations	HOMER HARBOR MODIFICATION, AK	\$340,000	Murkowski, Begich
Corps of Engineers	General Investigations	HUDSON—RARITAN ESTUARY, NY & NJ	\$170,000	Lautenberg, Menendez, Schumer, Gillibrand

Corps of Engineers .....	General Investigations .....	HUMBOLT BAY LONG TERM SEDIMENT MANAGEMENT, CA .....	\$130,000	Feinstein
Corps of Engineers .....	General Investigations .....	HUMBOLT, IA .....	\$130,000	Harkin, Grassley
Corps of Engineers .....	General Investigations .....	JAMES RIVER, SD & ND .....	\$200,000	Dorgan
Corps of Engineers .....	General Investigations .....	KALAELOA BARBERS POINT HARBOR MODIFICATION, HI .....	\$300,000	Inouye
Corps of Engineers .....	General Investigations .....	KOTZEBUE SMALL BOAT HARBOR, AK .....	\$210,000	Murkowski, Begich
Corps of Engineers .....	General Investigations .....	LAKE MONTAUK HARBOR, NY .....	\$441,000	Schumer
Corps of Engineers .....	General Investigations .....	LAKE WORTH INLET, FL .....	\$100,000	Martinez
Corps of Engineers .....	General Investigations .....	LANSING, GRAND RIVER WATERFRONT RESTORATION, MI .....	\$215,000	Levin, Stabenow
Corps of Engineers .....	General Investigations .....	LIDO KEY, SARASOTA, FL (SARASOTA, LIDO KEY, FL) .....	\$340,000	Bill Nelson
Corps of Engineers .....	General Investigations .....	LOS ANGELES RIVER ECOSYSTEM RESTORATION, CA .....	\$100,000	Boxer
Corps of Engineers .....	General Investigations .....	LOS ANGELES RIVER WATERCOURSE, HEADWORKS, CA .....	\$230,000	Boxer
Corps of Engineers .....	General Investigations .....	LOWER CACHE CREEK, YOLO COUNTY, WOODLAND AND VICINITY, CA .....	\$130,000	Feinstein, Boxer
Corps of Engineers .....	General Investigations .....	LOWER MISSION CREEK, CA .....	\$250,000	Feinstein, Boxer
Corps of Engineers .....	General Investigations .....	LOWER MISSISSIPPI RIVER RESOURCE STUDY, AR .....	\$250,000	Pryor, Lincoln
Corps of Engineers .....	General Investigations .....	LOWER SADDLE RIVER, BERGEN COUNTY, NJ .....	\$255,000	Lautenberg, Menendez
Corps of Engineers .....	General Investigations .....	MAALAEA HARBOR, MAUI, HI .....	\$202,000	Inouye
Corps of Engineers .....	General Investigations .....	MAHONING RIVER ENVIRONMENTAL DREDGING, OH .....	\$640,000	Voinovich
Corps of Engineers .....	General Investigations .....	MALIBU CREEK WATERSHED, CA .....	\$100,000	Feinstein
Corps of Engineers .....	General Investigations .....	MANHATTAN, KS .....	\$255,000	Roberts, Brownback
Corps of Engineers .....	General Investigations .....	MAY BRANCH, FORT SMITH, AR .....	\$425,000	Pryor, Lincoln
Corps of Engineers .....	General Investigations .....	MIAMI HARBOR, FL .....	\$510,000	Bill Nelson, Martinez
Corps of Engineers .....	General Investigations .....	MIDDLE CREEK, CA .....	\$250,000	Feinstein
Corps of Engineers .....	General Investigations .....	MIDDLE POTOMAC COMP PLAN, MD, VA, PA, WV, DC .....	\$255,000	Cardin
Corps of Engineers .....	General Investigations .....	MIDDLE POTOMAC WATERSHED, GREAT SENECA CREEK AND MUDDY BRANCH, MD .....	\$255,000	Cardin
Corps of Engineers .....	General Investigations .....	MILE POINT, FL (JACKSONVILLE) .....	\$185,000	Bill Nelson, Martinez
Corps of Engineers .....	General Investigations .....	MINNEHAHA CREEK WATERSHED, MN .....	\$215,000	Klobuchar
Corps of Engineers .....	General Investigations .....	MISSOURI RIVER LEVEE SYSTEM, UNITS L455 & R460-471, MO .....	\$340,000	Bond, Roberts
Corps of Engineers .....	General Investigations .....	MISSOURI RIVER, ND, MT, SD, NE, IA, KS, MO .....	\$5,500,000	Dorgan, Conrad
Corps of Engineers .....	General Investigations .....	MONTAUK POINT, NY .....	\$255,000	Schumer
Corps of Engineers .....	General Investigations .....	MONTPELIER, VT .....	\$239,000	Leahy
Corps of Engineers .....	General Investigations .....	NEW JERSEY SHORE PROECTION, HEREFORD TO CAPE MAY INLET, NJ .....	\$130,000	Lautenberg, Menendez
Corps of Engineers .....	General Investigations .....	NEW JERSEY SHORELINE ALTERNATIVE LONG-TERM NOURISHMENT, NJ .....	\$110,000	Lautenberg, Menendez
Corps of Engineers .....	General Investigations .....	NEW RIVER, CLAYTOR LAKE, VA .....	\$90,000	Webb,
Corps of Engineers .....	General Investigations .....	NIAGARA RIVER WATERSHED, NY .....	\$104,000	Schumer, Gillibrand
Corps of Engineers .....	General Investigations .....	NORTH CAROLINA INTERNATIONAL PORT, NC .....	\$274,000	Hagan
Corps of Engineers .....	General Investigations .....	OHIO RIVER BASIN COMPREHENSIVE STUDY, WV, KY, OH, PA .....	\$2,000,000	Byrd
Corps of Engineers .....	General Investigations .....	ONONDAGA LAKE, NY .....	\$215,000	Schumer, Gillibrand
Corps of Engineers .....	General Investigations .....	OLOGAH LAKE WATERSHED, KS AND OK .....	\$135,000	Inhofe
Corps of Engineers .....	General Investigations .....	PAJARO RIVER, CA .....	\$425,000	Feinstein, Boxer

CONGRESSIONALLY DIRECTED SPENDING ITEMS—Continued

Agency	Account	Project title	Funding	Member
Corps of Engineers	General Investigations	PASSAIC RIVER MAIN STEM, NJ	\$215,000	Lautenberg, Menendez
Corps of Engineers	General Investigations	PASSAIC RIVER, HARRISON, NJ	\$215,000	Lautenberg, Menendez
Corps of Engineers	General Investigations	PEARL RIVER WATERSHED, MS	\$200,000	Cochran, Wicker
Corps of Engineers	General Investigations	PECKMAN RIVER BASIN, NJ	\$300,000	Lautenberg, Menendez
Corps of Engineers	General Investigations	PEORIA RIVERFRONT DEVELOPMENT, IL	\$50,000	Durbin
Corps of Engineers	General Investigations	PINE MOUNTAIN LAKE, AR	\$425,000	Pryor, Lincoln
Corps of Engineers	General Investigations	PLAQUEMINES PARISH, LA	\$107,000	Landrieu, Vitter
Corps of Engineers	General Investigations	PORT OF IBERIA, LA	\$1,000,000	Landrieu, Vitter
Corps of Engineers	General Investigations	PRAIRIE DUPONT LEVEE, IL	\$464,000	Durbin
Corps of Engineers	General Investigations	RAHWAY RIVER BASIN, NJ	\$255,000	Lautenberg, Menendez
Corps of Engineers	General Investigations	RARITAN BAY AND SANDY HOOK BAY, HIGHLANDS, NJ	\$255,000	Lautenberg, Menendez
Corps of Engineers	General Investigations	RARITAN BAY AND SANDY HOOK BAY, LEONARDO, NJ	\$25,000	Lautenberg, Menendez
Corps of Engineers	General Investigations	RARITAN BAY AND SANDY HOOK BAY, UNION-BEACH, NJ	\$110,000	Lautenberg, Menendez
Corps of Engineers	General Investigations	RED CLAY CREEK, CHRISTINA RIVER WATERSHED, DE	\$300,000	Carper, Kaufman
Corps of Engineers	General Investigations	RED RIVER OF THE NORTH BASIN, MN, ND, SD AND MANITOBA, CANADA	\$2,900,000	Dorgan, Klobuchar, Conrad
Corps of Engineers	General Investigations	REDWOOD CITY HARBOR, CA	\$210,000	Feinstein
Corps of Engineers	General Investigations	REEDY RIVER, SC	\$170,000	Graham
Corps of Engineers	General Investigations	RIO GRANDE BASIN, NM, CO & TX	\$120,000	Bingaman, T. Udall
Corps of Engineers	General Investigations	RIVER DES PERES, MO	\$100,000	Bond
Corps of Engineers	General Investigations	RIVERSIDE COUNTY SAMP, CA	\$221,000	Feinstein
Corps of Engineers	General Investigations	S. FORK , SOUTH BRANCH, CHICAGO RIVER, (BUBBLY CREEK), IL	\$100,000	Durbin
Corps of Engineers	General Investigations	SABINE-NECHES WATERWAY, TX	\$170,000	Cornyn
Corps of Engineers	General Investigations	SACRAMENTO RIVER FLOOD CONTROL, GRR, CA (SYSTEMS EVALUATION)	\$425,000	Feinstein
Corps of Engineers	General Investigations	SAN DIEGO COUNTY SAMP, CA	\$100,000	Feinstein
Corps of Engineers	General Investigations	SAN DIEGO COUNTY SHORELINE, CA	\$340,000	Boxer
Corps of Engineers	General Investigations	SAN FRANCISQUITO CREEK, CA	\$130,000	Feinstein
Corps of Engineers	General Investigations	SAN JOAQUIN RIVER BASIN (SJR), FRAZIER CREEK/STRATHMO, CA	\$130,000	Feinstein
Corps of Engineers	General Investigations	SAN JOAQUIN RIVER BASIN (SJR), WHITE RIVER/DRY CREEK, CA	\$130,000	Feinstein
Corps of Engineers	General Investigations	SAN JOAQUIN RIVER BASIN, LOWER SAN JOAQUIN RIVER, CA	\$640,000	Feinstein, Boxer
Corps of Engineers	General Investigations	SAN JOAQUIN RIVER BASIN, WEST STANISLAUS, ORESTIMBA CREEK, CA	\$370,000	Feinstein
Corps of Engineers	General Investigations	SANTA CLARA RIVER WATERSHED, CA	\$425,000	Feinstein
Corps of Engineers	General Investigations	SANTA FE, NM	\$228,000	Bingaman, T. Udall
Corps of Engineers	General Investigations	SAVANNAH RIVER BASIN COMPREHENSIVE, GA PH II	\$210,000	Chambliss, Graham
Corps of Engineers	General Investigations	SCHUYLKILL RIVER BASIN, WISSAHICKON, PA	\$214,000	Specter
Corps of Engineers	General Investigations	SKAGIT RIVER, WA	\$550,000	Murray, Cantwell
Corps of Engineers	General Investigations	SKOKOMISH RIVER BASIN, WA	\$300,000	Murray, Cantwell

Corps of Engineers .....	General Investigations .....	SOUTH BOULDER CREEK, CO .....	\$82,000	Bennet
Corps of Engineers .....	General Investigations .....	SOUTH RIVER, RARITAN RIVER BASIN, NJ .....	\$215,000	Lautenberg, Menendez
Corps of Engineers .....	General Investigations .....	SOUTH SAN FRANCISCO SHORELINE, CA .....	\$425,000	Feinstein
Corps of Engineers .....	General Investigations .....	SOUTHEAST OKLAHOMA WATER RESOURCE STUDY, OK .....	\$255,000	Inhofe
Corps of Engineers .....	General Investigations .....	SOUTHWEST ARKANSAS, AR .....	\$210,000	Pryor, Lincoln
Corps of Engineers .....	General Investigations .....	SOUTHWEST COASTAL LOUISIANA HURRICANE PROTECTION, LA .....	\$425,000	Landrieu, Vitter
Corps of Engineers .....	General Investigations .....	SPARKS ARROYO COLONIA, EL PASO COUNTY, TX .....	\$143,000	Hutchison, Cornyn
Corps of Engineers .....	General Investigations .....	ST. CHARLES PARISH URBAN FLOOD CONTROL, LA .....	\$391,000	Landrieu, Vitter
Corps of Engineers .....	General Investigations .....	ST. HELENA-NAPA RIVER, CA .....	\$170,000	Boxer
Corps of Engineers .....	General Investigations .....	STILLAGUAMISH RIVER ECOSYSTEM RESTORATION, WA .....	\$130,000	Murray
Corps of Engineers .....	General Investigations .....	STONY BROOK, MILLSTONE RIVER BASIN, NJ .....	\$110,000	Lautenberg, Menendez
Corps of Engineers .....	General Investigations .....	SUN VALLEY WATERSHED, CA .....	\$130,000	Feinstein
Corps of Engineers .....	General Investigations .....	SURF CITY AND NORTH TOPSAIL BEACH, NC .....	\$187,000	Burr, Hagan
Corps of Engineers .....	General Investigations .....	SUSQUEHANNA RIVER BASIN LOW FLOW MANAGEMENT AND ENVIRONMENTAL RESTORATION STUDY, MD, PA, & NY .....	\$130,000	Mikulski
Corps of Engineers .....	General Investigations .....	TOPEKA, KS .....	\$150,000	Roberts
Corps of Engineers .....	General Investigations .....	TRUCKEE MEADOWS, NV .....	\$10,000,000	Reid, Ensign
Corps of Engineers .....	General Investigations .....	UPPER DELAWARE RIVER WATERSHED, FLOODPLAIN RECONNECTION, NY .....	\$130,000	Schumer, Gillibrand
Corps of Engineers .....	General Investigations .....	UPPER DELAWARE RIVER WATERSHED, LIVINGSTON MANOR, NY .....	\$170,000	Schumer, Gillibrand
Corps of Engineers .....	General Investigations .....	UPPER GUYANDOTTE, WV .....	\$300,000	Byrd
Corps of Engineers .....	General Investigations .....	UPPER MISS RIVER COMPREHENSIVE PLAN, IL, IA, MO, MN & WI .....	\$640,000	Durbin, Harkin, Grassley
Corps of Engineers .....	General Investigations .....	UPPER MISS-ILLINOIS WW SYSTEM, IL, IA, MN, MO & WI .....	\$9,000,000	Durbin, Harkin, Bond, Grassley, Klobuchar
Corps of Engineers .....	General Investigations .....	UPPER OHIO NAVIGATION STUDY, PA .....	\$1,700,000	Specter, Casey
Corps of Engineers .....	General Investigations .....	UPPER RAPPAHANNOCK RIVER, VA (PHASE II) .....	\$170,000	Webb, Warner
Corps of Engineers .....	General Investigations .....	UPPER TURKEY CREEK, KS .....	\$170,000	Roberts, Brownback
Corps of Engineers .....	General Investigations .....	VALDEZ HARBOR EXPANSION, AK .....	\$385,000	Murkowski
Corps of Engineers .....	General Investigations .....	VICINITY OF WILLOUGHBY SPIT, VA .....	\$243,000	Webb, Warner
Corps of Engineers .....	General Investigations .....	WAIAKEA-PALAI STREAMS, HI .....	\$300,000	Inouye, Akaka
Corps of Engineers .....	General Investigations .....	WALILUPE STREAM, OAHU, HI .....	\$175,000	Inouye
Corps of Engineers .....	General Investigations .....	WALTON COUNTY, FL .....	\$229,000	Bill Nelson, Martinez
Corps of Engineers .....	General Investigations .....	WASHITA RIVER BASIN, OK .....	\$215,000	Inhofe
Corps of Engineers .....	General Investigations .....	WATERTOWN AND VICINITY, SD .....	\$448,000	Johnson, Thune
Corps of Engineers .....	General Investigations .....	WELLS LOCK AND DAM, LITTLE KANAWHA RIVER, WV (LITTLE KANAWHA RIVER, WV) .....	\$40,000	Byrd
Corps of Engineers .....	General Investigations .....	WEST MAUI FEASIBILITY STUDY, HI .....	\$100,000	Inouye, Akaka
Corps of Engineers .....	General Investigations .....	WEST SACRAMENTO, CA .....	\$950,000	Feinstein, Boxer
Corps of Engineers .....	General Investigations .....	WEST SHORE, LAKE PONTCHARTRAIN, LA .....	\$425,000	Landrieu, Vitter
Corps of Engineers .....	General Investigations .....	WESTERN LAKE ERIE BASIN, OH, IN, & MI .....	\$340,000	Voinovich
Corps of Engineers .....	General Investigations .....	WESTMINSTER (EAST GARDEN GROVE) WATERSHED, CA .....	\$100,000	Feinstein



CONGRESSIONALLY DIRECTED SPENDING ITEMS—Continued

Agency	Account	Project title	Funding	Member
Corps of Engineers	General Investigations	WHITE RIVER BASIN COMPREHENSIVE, AR & MO	\$250,000	Pryor, Lincoln
Corps of Engineers	General Investigations	WHITE RIVER NAVIGATION TO BATESVILLE, AR	\$170,000	Pryor, Lincoln
Corps of Engineers	General Investigations	WHITTIER HARBOR, AK	\$340,000	Murkowski
Corps of Engineers	General Investigations	WILLAMETTE RIVER ENVIRONMENTAL DREDGING, OR	\$215,000	Wyden, Merkley
Corps of Engineers	General Investigations	GENERAL INVESTIGATION ITEMS NOT LISTED UNDER STATES		
Corps of Engineers	General Investigations	COORDINATION STUDIES WITH OTHER AGENCIES		
Corps of Engineers	General Investigations	OTHER COORDINATION PROGRAMS		
Corps of Engineers	General Investigations	LAKE TAHOE	\$400,000	Reid, Feinstein
Corps of Engineers	General Investigations	PLANNING ASSISTANCE TO STATES		
Corps of Engineers	General Investigations	Delaware Estuary Salinity Monitoring Study, DE & NJ	\$200,000	Lautenberg, Kaufman, Menendez
Corps of Engineers	General Investigations	Hawaii DOT GIS, HI	\$100,000	Inouye
Corps of Engineers	General Investigations	Hawaii Water Resources Management, HI	\$270,000	Inouye
Corps of Engineers	General Investigations	Rainfall Atlas of Hawaii, State of Hawaii and Pacific Territories, HI	\$100,000	Inouye
Corps of Engineers	General Investigations	Waimanalo Wastewater Effluent Reuse Plan, State of Hawaii and Pacific Territories, HI	\$67,000	Inouye
Corps of Engineers	General Investigations	State of Hawaii General Flood Control Plan Update, State of Hawaii and Pacific Territories, HI	\$1,000,000	Inouye, Akaka
Corps of Engineers	General Investigations	Boyer River, Missouri Valley, IA	\$36,000	Grassley
Corps of Engineers	General Investigations	Lake County Wetlands Restoration, IL	\$200,000	Durbin
Corps of Engineers	General Investigations	Choctaw County Reservoir, MS	\$100,000	Wicker
Corps of Engineers	General Investigations	Oklahoma Comp Water Plan, OK	\$500,000	Inhofe
Corps of Engineers	General Investigations	Storm Water Management Plan for Coastal Communities, VA	\$220,000	Webb, Warner
Corps of Engineers	General Investigations	COLLECTION AND STUDY OF BASIC DATA		
Corps of Engineers	General Investigations	COASTAL FIELD DATA COLLECTION		
Corps of Engineers	General Investigations	COASTAL DATA INFORMATION PROGRAM	\$1,000,000	Wyden, Merkley
Corps of Engineers	General Investigations	PACIFIC ISLAND LAND OCEAN TYPHOON EXPERIMENT, HI	\$1,000,000	Inouye
Corps of Engineers	General Investigations	SURGE AND WAVE ISLAND MODELING STUDIES, HI	\$1,250,000	Inouye
Corps of Engineers	General Investigations	FLOOD PLAIN MANAGEMENT SERVICES		
Corps of Engineers	General Investigations	White Clay Creek, New Castle, DE	\$200,000	Carper, Kaufman
Corps of Engineers	General Investigations	Hawaii Technical Services, HI	\$40,000	Inouye
Corps of Engineers	General Investigations	Hurricane Evacuation Studies, Hawaii	\$1,000,000	Inouye
Corps of Engineers	General Investigations	Waiohuli Gulch Flood Hazard Study, Kula, Maui, HI	\$200,000	Inouye
Corps of Engineers	General Investigations	Iowa Multi-State Dam Safety Analyses, IA	\$37,000	Harkin, Grassley
Corps of Engineers	General Investigations	Little Sioux Watershed, IA	\$50,000	Harkin, Grassley
Corps of Engineers	General Investigations	Mon-Maq Dam Removal Study & Local Floodplain Master Planning, Monticello, IA	\$120,000	Harkin, Grassley

Corps of Engineers .....	General Investigations .....	Chitimacha Tribe of LA, [GIS] .....	\$250,000	Landrieu
Corps of Engineers .....	General Investigations .....	City of Alexandria, LA [GIS] .....	\$200,000	Landrieu
Corps of Engineers .....	General Investigations .....	East Baton Rouge Parish, LA [GIS] .....	\$1,200,000	Vitter
Corps of Engineers .....	General Investigations .....	Livingston Parish, LA [GIS] .....	\$350,000	Vitter
Corps of Engineers .....	General Investigations .....	Floodplain maps for Manalapan and Matchaponix Brooks, NJ .....	\$500,000	Lautenberg, Menendez
Corps of Engineers .....	General Investigations .....	Southeastern, PA .....	\$250,000	Specter
Corps of Engineers .....	General Investigations .....	RESEARCH AND DEVELOPMENT .....	\$5,000,000	Cochran
Corps of Engineers .....	General Investigations .....	Submerged Aquatic Vegetation, MD .....	\$1,000,000	Cardin
Corps of Engineers .....	General Investigations .....	Urban Flood Demonstration Program, DRI, NV .....	\$2,500,000	Reid
Corps of Engineers .....	General Provision .....	Section 106 .....		Cochran
Corps of Engineers .....	General Provision .....	Section 107 .....		Johnson, Thune
Corps of Engineers .....	General Provision .....	Section 108 .....		Bennett, Tester
Corps of Engineers .....	General Provision .....	Section 109 .....		Harkin, Grassley
Corps of Engineers .....	General Provision .....	Section 110 .....		Klobuchar
Corps of Engineers .....	General Provision .....	Section 111 .....		Harkin, Grassley
Corps of Engineers .....	General Provision .....	Section 112 .....		Murkowski
Corps of Engineers .....	General Provision .....	Section 113 .....		Ben Nelson
Corps of Engineers .....	General Provision .....	Section 114 .....		Boxer
Corps of Engineers .....	General Provision .....	Section 205 .....		Tester
Corps of Engineers .....	General Provision .....	Section 206 .....		Reid
Corps of Engineers .....	General Provision .....	Section 207 .....		Reid
Corps of Engineers .....	General Provision .....	Section 208 .....		Reid
Corps of Engineers .....	MR&T—CG .....	GRAND PRAIRIE REGION, AR .....	\$10,000,000	Pryor, Lincoln
Corps of Engineers .....	MR&T—CG .....	MISSISSIPPI RIVER LEVEES, AR, IL, KY, LA, MS, MO & TN .....	\$16,565,000	Cochran, Pryor, Landrieu, Bond, Lincoln, Wicker
Corps of Engineers .....	MR&T—CG .....	ST. FRANCIS BASIN, AR & MO .....	\$3,700,000	Pryor, Bond
Corps of Engineers .....	MR&T—CG .....	ATCHAFALAYA BASIN, FLOODWAY SYSTEM, LA .....	\$336,000	Landrieu, Vitter
Corps of Engineers .....	MR&T—CG .....	ATCHAFALAYA BASIN, LA .....	\$10,166,000	Landrieu, Vitter
Corps of Engineers .....	MR&T—CG .....	YAZOO BASIN—BIG SUNFLOWER RIVER, MS .....	\$3,200,000	Cochran, Wicker
Corps of Engineers .....	MR&T—CG .....	YAZOO BASIN—DELTA HEADWATERS PROJECT, MS .....	\$23,200,000	Cochran, Wicker
Corps of Engineers .....	MR&T—CG .....	YAZOO BASIN—MAIN STEM, MS .....	\$25,000	Cochran, Wicker
Corps of Engineers .....	MR&T—CG .....	YAZOO BASIN—REFORMULATION UNIT, MS .....	\$1,500,000	Wicker
Corps of Engineers .....	MR&T—CG .....	YAZOO BASIN—UPPER YAZOO PROJECTS, MS .....	\$13,000,000	Cochran, Wicker
Corps of Engineers .....	MR&T—CG .....	YAZOO BASIN—BACKWATER LESS ROCKY BAYOU .....	\$75,000	Cochran, Wicker
Corps of Engineers .....	MR&T—CG .....	YAZOO BASIN—YAZOO BACKWATER, MS .....	\$669,000	Cochran, Wicker
Corps of Engineers .....	MR&T—GI .....	QUIVER RIVER, MS .....	\$160,000	Cochran, Wicker
Corps of Engineers .....	MR&T—GI .....	SOUTHEAST ARKANSAS, AR .....	\$300,000	Pryor, Lincoln
Corps of Engineers .....	MR&T—GI .....	SPRING BAYOU, LA .....	\$350,000	Landrieu
Corps of Engineers .....	MR&T—GI .....	COLLECTION AND STUDY OF BASIC DATA .....	\$1,665,000	Cochran, Landrieu, Wicker
Corps of Engineers .....	MR&T—Maintenance .....	HELENA HARBOR, PHILLIPS COUNTY, AR .....	\$211,000	Pryor, Lincoln

CONGRESSIONALLY DIRECTED SPENDING ITEMS—Continued

Agency	Account	Project title	Funding	Member
Corps of Engineers .....	MR&T—Maintenance .....	LOWER ARKANSAS RIVER, SOUTH BANK, AR .....	\$25,000	Pryor, Lincoln
Corps of Engineers .....	MR&T—Maintenance .....	MISSISSIPPI RIVER LEVEES, AR, IL, KY, LA, MS, MO & TN .....	\$3,697,000	Cochran, Landrieu, Pryor, Lincoln, Wicker
Corps of Engineers .....	MR&T—Maintenance .....	BONNET CARRE, LA .....	\$1,085,000	Landrieu, Vitter
Corps of Engineers .....	MR&T—Maintenance .....	MISSISSIPPI DELTA REGION, CAERNARVON, LA .....	\$1,442,000	Landrieu
Corps of Engineers .....	MR&T—Maintenance .....	OLD RIVER, LA .....	\$461,000	Landrieu
Corps of Engineers .....	MR&T—Maintenance .....	GREENVILLE HARBOR, MS .....	\$476,000	Cochran, Wicker
Corps of Engineers .....	MR&T—Maintenance .....	VICKSBURG HARBOR, MS .....	\$495,000	Cochran, Wicker
Corps of Engineers .....	MR&T—Maintenance .....	YAZOO BASIN, ARKABUTLA LAKE, MS .....	\$779,000	Cochran, Wicker
Corps of Engineers .....	MR&T—Maintenance .....	YAZOO BASIN, BIG SUNFLOWER RIVER, MS .....	\$2,246,000	Cochran, Wicker
Corps of Engineers .....	MR&T—Maintenance .....	YAZOO BASIN, ENID LAKE, MS .....	\$1,725,000	Cochran, Wicker
Corps of Engineers .....	MR&T—Maintenance .....	YAZOO BASIN, GRENADA LAKE, MS .....	\$1,050,000	Cochran, Wicker
Corps of Engineers .....	MR&T—Maintenance .....	YAZOO BASIN, MAIN STEM, MS .....	\$1,067,000	Cochran, Wicker
Corps of Engineers .....	MR&T—Maintenance .....	YAZOO BASIN, SARDIS LAKE, MS .....	\$1,854,000	Cochran, Wicker
Corps of Engineers .....	MR&T—Maintenance .....	YAZOO BASIN, TRIBUTARIES, MS .....	\$47,000	Cochran, Wicker
Corps of Engineers .....	MR&T—Maintenance .....	YAZOO BASIN, WILL M WHITTINGTON AUX CHAN, MS .....	\$68,000	Cochran, Wicker
Corps of Engineers .....	MR&T—Maintenance .....	ST. FRANCIS BASIN, AR & MO .....	\$3,600,000	Pryor, Bond, Lincoln
Corps of Engineers .....	Operation and Maintenance .....	Absecon Inlet, NJ .....	\$250,000	Lautenberg, Menendez
Corps of Engineers .....	Operation and Maintenance .....	Appomattox River, VA .....	\$500,000	Webb, Warner
Corps of Engineers .....	Operation and Maintenance .....	Ashtabula Harbor, OH .....	\$1,000,000	Voinovich
Corps of Engineers .....	Operation and Maintenance .....	Atlantic Intracoastal Waterway—DSC, VA .....	\$320,000	Webb, Warner
Corps of Engineers .....	Operation and Maintenance .....	Atlantic Intracoastal Waterway, GA .....	\$735,000	Chambliss
Corps of Engineers .....	Operation and Maintenance .....	Atlantic Intracoastal Waterway, SC .....	\$500,000	Graham
Corps of Engineers .....	Operation and Maintenance .....	Baltimore Harbor and Channel (50 Foot), MD .....	\$4,487,000	Mikulski, Cardin
Corps of Engineers .....	Operation and Maintenance .....	Bass Harbor, Tremont, ME .....	\$60,000	Collins
Corps of Engineers .....	Operation and Maintenance .....	Beaufort Harbor, NC .....	\$250,000	Hagan
Corps of Engineers .....	Operation and Maintenance .....	Blakely Mt Dam, Lake Ouachita, AR .....	\$500,000	Pryor, Lincoln
Corps of Engineers .....	Operation and Maintenance .....	Block Island Harbor of Refuge, RI .....	\$1,250,000	Reed
Corps of Engineers .....	Operation and Maintenance .....	Bogue Inlet, NC .....	\$650,000	Hagan
Corps of Engineers .....	Operation and Maintenance .....	Bucks Harbor, Machiasport, ME .....	\$750,000	Collins
Corps of Engineers .....	Operation and Maintenance .....	Bull Shoals Lake, AR .....	\$250,000	Pryor, Lincoln
Corps of Engineers .....	Operation and Maintenance .....	Calcasieu River and Pass, LA .....	\$6,000,000	Landrieu, Vitter
Corps of Engineers .....	Operation and Maintenance .....	Carolina Beach Inlet, NC .....	\$500,000	Hagan
Corps of Engineers .....	Operation and Maintenance .....	Caruthersville Harbor, MO .....	\$760,000	Bond
Corps of Engineers .....	Operation and Maintenance .....	Cheyenne River Sioux Tribe, Lower Brule Sioux, SD .....	\$3,000,000	Johnson, Thune
Corps of Engineers .....	Operation and Maintenance .....	Clairborne County Port, MS .....	\$72,000	Cochran, Wicker

Corps of Engineers .....	Operation and Maintenance .....	Clearwater Lake, MO .....	\$85,000	Bond
Corps of Engineers .....	Operation and Maintenance .....	Cleveland Harbor, OH .....	\$1,000,000	Voinovich
Corps of Engineers .....	Operation and Maintenance .....	Cocheco River Dredging Project, NH .....	\$2,000,000	Gregg, Shaheen
Corps of Engineers .....	Operation and Maintenance .....	Columbia River at Baker Bay, WA & OR .....	\$641,000	Murray, Cantwell
Corps of Engineers .....	Operation and Maintenance .....	Columbia River Between Chinook and Sand Island, WA .....	\$840,000	Murray
Corps of Engineers .....	Operation and Maintenance .....	Coos Bay, OR .....	\$452,000	Wyden, Merkley
Corps of Engineers .....	Operation and Maintenance .....	DeGray Lake, AR .....	\$500,000	Pryor, Lincoln
Corps of Engineers .....	Operation and Maintenance .....	Depoe Bay, OR .....	\$118,000	Wyden, Merkley
Corps of Engineers .....	Operation and Maintenance .....	Fox River, WI .....	\$2,000,000	Kohl
Corps of Engineers .....	Operation and Maintenance .....	Garrison Dam, Lake Sakakawea, ND .....	\$200,000	Dorgan
Corps of Engineers .....	Operation and Maintenance .....	Georgetown Harbor, SC .....	\$1,000,000	Graham
Corps of Engineers .....	Operation and Maintenance .....	Great Salt Pond, Block Island, RI (New Harbor) .....	\$100,000	Reed
Corps of Engineers .....	Operation and Maintenance .....	Green Bay Harbor, WI .....	\$3,000,000	Kohl
Corps of Engineers .....	Operation and Maintenance .....	Gulfport Harbor, MS .....	\$1,530,000	Cochran, Wicker
Corps of Engineers .....	Operation and Maintenance .....	Harbor of Refuge, Lewes, DE .....	\$200,000	Carper, Kaufman
Corps of Engineers .....	Operation and Maintenance .....	Illinois Waterway, IL & IN (MVR Portion) .....	\$900,000	Durbin
Corps of Engineers .....	Operation and Maintenance .....	Intracoastal Waterway, Caloosahatchee River to Anclote River, FL .....	\$1,220,000	Bill Nelson, Martinez
Corps of Engineers .....	Operation and Maintenance .....	Intracoastal Waterway, Jacksonville to Miami, FL .....	\$189,000	Bill Nelson, Martinez
Corps of Engineers .....	Operation and Maintenance .....	J. Bennett Johnston Waterway, LA .....	\$3,000,000	Landrieu, Vitter
Corps of Engineers .....	Operation and Maintenance .....	Kodiak Harbor, AK .....	\$240,000	Murkowski
Corps of Engineers .....	Operation and Maintenance .....	Lake Providence Harbor, LA .....	\$478,000	Landrieu, Vitter
Corps of Engineers .....	Operation and Maintenance .....	Lockwoods Folly River, NC .....	\$600,000	Hagan
Corps of Engineers .....	Operation and Maintenance .....	Lower Monumental Lock & Dam, WA .....	\$4,000,000	Murray
Corps of Engineers .....	Operation and Maintenance .....	Madison Parish Port, LA .....	\$92,000	Landrieu, Vitter
Corps of Engineers .....	Operation and Maintenance .....	Marina Del Rey, CA .....	\$3,000,000	Feinstein, Boxer
Corps of Engineers .....	Operation and Maintenance .....	Michigan Harbor Dredging, MI .....	\$7,000,000	Levin, Stabenow
Corps of Engineers .....	Operation and Maintenance .....	Alpena Harbor, MI .....	.....	Levin, Stabenow
Corps of Engineers .....	Operation and Maintenance .....	Arcadia Harbor, MI .....	.....	Levin, Stabenow
Corps of Engineers .....	Operation and Maintenance .....	Au Sable, MI .....	.....	Levin, Stabenow
Corps of Engineers .....	Operation and Maintenance .....	Bay Port Harbor, MI .....	.....	Levin, Stabenow
Corps of Engineers .....	Operation and Maintenance .....	Big Bay Harbor, MI .....	.....	Levin, Stabenow
Corps of Engineers .....	Operation and Maintenance .....	Black River (Gogebic), MI .....	.....	Levin, Stabenow
Corps of Engineers .....	Operation and Maintenance .....	Bolles Harbor, MI .....	.....	Levin, Stabenow
Corps of Engineers .....	Operation and Maintenance .....	Clinton River, MI .....	.....	Levin, Stabenow
Corps of Engineers .....	Operation and Maintenance .....	Eagle Harbor, MI .....	.....	Levin, Stabenow
Corps of Engineers .....	Operation and Maintenance .....	Frankfort Harbor, MI .....	.....	Levin, Stabenow
Corps of Engineers .....	Operation and Maintenance .....	Inland Route, MI .....	.....	Levin, Stabenow
Corps of Engineers .....	Operation and Maintenance .....	Lac La Belle Harbor, MI .....	.....	Levin, Stabenow
Corps of Engineers .....	Operation and Maintenance .....	Leland Harbor, MI .....	.....	Levin, Stabenow
Corps of Engineers .....	Operation and Maintenance .....	Les Cheneaux Island Channels, MI .....	.....	Levin, Stabenow

CONGRESSIONALLY DIRECTED SPENDING ITEMS—Continued

Agency	Account	Project title	Funding	Member
Corps of Engineers	Operation and Maintenance	Little Lake Harbor, MI		Levin, Stabenow
Corps of Engineers	Operation and Maintenance	Ludington Harbor, MI		Levin, Stabenow
Corps of Engineers	Operation and Maintenance	Manistee Harbor, MI		Levin, Stabenow
Corps of Engineers	Operation and Maintenance	Manistique Harbor, MI		Levin, Stabenow
Corps of Engineers	Operation and Maintenance	Marquette Harbor, MI		Levin, Stabenow
Corps of Engineers	Operation and Maintenance	Menominee Harbor, MI		Levin, Stabenow
Corps of Engineers	Operation and Maintenance	New Buffalo Harbor, MI		Levin, Stabenow
Corps of Engineers	Operation and Maintenance	Pentwater Harbor, MI		Levin, Stabenow
Corps of Engineers	Operation and Maintenance	Point Lookout Harbor, MI		Levin, Stabenow
Corps of Engineers	Operation and Maintenance	Port Austin Harbor, MI		Levin, Stabenow
Corps of Engineers	Operation and Maintenance	Port Sanilac Harbor, MI		Levin, Stabenow
Corps of Engineers	Operation and Maintenance	Portage Harbor, MI		Levin, Stabenow
Corps of Engineers	Operation and Maintenance	Rouge River, MI		Levin, Stabenow
Corps of Engineers	Operation and Maintenance	Saugatuck Harbor, MI		Levin, Stabenow
Corps of Engineers	Operation and Maintenance	South Haven Harbor, MI		Levin, Stabenow
Corps of Engineers	Operation and Maintenance	White Lake Harbor, MI		Levin, Stabenow
Corps of Engineers	Operation and Maintenance	Missouri River—Rulo to the Mouth, IA, KS, MO & NE	\$941,000	Harkin, Bond, Grassley
Corps of Engineers	Operation and Maintenance	Mouth of Yazoo River, MS	\$72,000	Cochran, Wicker
Corps of Engineers	Operation and Maintenance	Narrows Dam, Lake Greeson, AR	\$500,000	Pryor, Lincoln
Corps of Engineers	Operation and Maintenance	New Madrid Harbor (Mile 889), MO	\$200,000	Bond
Corps of Engineers	Operation and Maintenance	New Madrid Harbor, MO	\$310,000	Bond
Corps of Engineers	Operation and Maintenance	New Topsail Inlet, NC	\$600,000	Hagan
Corps of Engineers	Operation and Maintenance	Newburyport Harbor, MA	\$350,000	Kennedy, Kerry
Corps of Engineers	Operation and Maintenance	Norwalk Harbor, CT	\$1,000,000	Dodd, Lieberman
Corps of Engineers	Operation and Maintenance	Ocean City Harbor and Inlet and Sinepuxent Bay, MD	\$1,400,000	Mikulski
Corps of Engineers	Operation and Maintenance	Ogdensburg Harbor, NY	\$70,000	Schumer
Corps of Engineers	Operation and Maintenance	Osceola Harbor, AR	\$403,000	Pryor, Lincoln
Corps of Engineers	Operation and Maintenance	Oswego Harbor, NY	\$300,000	Schumer, Gillibrand
Corps of Engineers	Operation and Maintenance	Pascagoula Harbor, MS	\$3,395,000	Cochran, Wicker
Corps of Engineers	Operation and Maintenance	Pawcatuck River, Little Narragansett Bay & Watch Hill Cove, RI & CT	\$200,000	Reed
Corps of Engineers	Operation and Maintenance	Petersburg North Harbor, AK	\$500,000	Murkowski, Begich
Corps of Engineers	Operation and Maintenance	Port St. Joe, FL, DMMP	\$500,000	Bill Nelson
Corps of Engineers	Operation and Maintenance	Providence Harbor Shipping Channel, RI	\$300,000	Reed, Whitehouse
Corps of Engineers	Operation and Maintenance	Raritan River, NJ	\$380,000	Lautenberg, Menendez
Corps of Engineers	Operation and Maintenance	Red Rock Dam and Lake, Red Rock, IA	\$589,000	Harkin, Grassley
Corps of Engineers	Operation and Maintenance	Rosedale Harbor, MS	\$585,000	Cochran, Wicker

Corps of Engineers .....	Operation and Maintenance .....	Savannah River Below Augusta, GA .....	\$300,000	Isakson
Corps of Engineers .....	Operation and Maintenance .....	Saylorville Lake, IA .....	\$347,000	Harkin, Grassley
Corps of Engineers .....	Operation and Maintenance .....	Somerset County Channels, MD .....	\$1,000,000	Mikulski
Corps of Engineers .....	Operation and Maintenance .....	Tennessee-Tombigbee Waterway Wildlife Mitigation, AL & MS .....	\$400,000	Cochran, Wicker
Corps of Engineers .....	Operation and Maintenance .....	Tennessee-Tombigbee Waterway, AL & MS .....	\$2,022,000	Cochran, Wicker
Corps of Engineers .....	Operation and Maintenance .....	Texas Water Allocation Assessment, TX .....	\$900,000	Hutchison, Cornyn
Corps of Engineers .....	Operation and Maintenance .....	Toledo Harbor, OH .....	\$1,000,000	Voinovich
Corps of Engineers .....	Operation and Maintenance .....	Willamette River at Willamette Falls, OR .....	\$831,000	Wyden, Merkley
Corps of Engineers .....	Operation and Maintenance .....	Wilmington Harbor, DE .....	\$2,000,000	Carper, Kaufman
Corps of Engineers .....	Operation and Maintenance .....	Wilson Lake, KS .....	\$300,000	Roberts
Corps of Engineers .....	Operation and Maintenance .....	Yazoo River, MS .....	\$119,000	Cochran
Corps of Engineers .....	Operation and Maintenance .....	Yellow Bend Port, AR .....	\$111,000	Pryor, Lincoln
Corps of Engineers .....	Operation and Maintenance .....	Operation and Maintenance Items Not Listed Under States .....		
Corps of Engineers .....	Operation and Maintenance .....	NATIONAL COASTAL MAPPING PROGRAM .....	\$5,000,000	Cochran, Wicker
Corps of Engineers .....	Operation and Maintenance .....	REGIONAL SEDIMENT MANAGEMENT DEMONSTRATION PROGRAM .....		
Corps of Engineers .....	Operation and Maintenance .....	Hawaii RSM, HI .....	\$500,000	Inouye, Akaka
Corps of Engineers .....	Operation and Maintenance .....	Southeast Oahu Regional Sediment Management, HI .....	\$500,000	Inouye
Corps of Engineers .....	Operation and Maintenance .....	North Carolina RSM, NJ .....	\$600,000	Burr, Hagan
Corps of Engineers .....	Operation and Maintenance .....	Delaware Estuary RSM, NJ .....	\$200,000	Lautenberg, Kaufman, Menendez, Lautenberg
Corps of Engineers .....	Operation and Maintenance .....	South Coastal Rhode Island Regional Sediment Management .....	\$750,000	Reed
Corps of Engineers .....	Operation and Maintenance .....	Chesapeake Bay, Newport Comfort, Mathews County, VA .....	\$350,000	Webb, Warner
Bureau of Reclamation ....	California Bay-Delta Restoration .....	CALFED .....	\$10,000,000	Feinstein
Bureau of Reclamation ....	Water and Related Resources .....	ALBUQUERQUE METRO AREA WATER & RECLAMATION REUSE .....	\$500,000	Bingaman, T. Udall
Bureau of Reclamation ....	Water and Related Resources .....	CHIMAYO, NM .....	\$500,000	Bingaman
Bureau of Reclamation ....	Water and Related Resources .....	CITY OF NORTH LAS VEGAS (NORTH LAS VEGAS, WATER REUSE) .....	\$2,000,000	Reid
Bureau of Reclamation ....	Water and Related Resources .....	CVP—FRIANT DIVISION .....	\$500,000	Feinstein
Bureau of Reclamation ....	Water and Related Resources .....	CVP—SAN JOAQUIN DIVISION .....	\$7,000,000	Feinstein
Bureau of Reclamation ....	Water and Related Resources .....	DESCHUTES PROJECT .....	\$500,000	Wyden, Merkley
Bureau of Reclamation ....	Water and Related Resources .....	EASTERN NEW MEXICO RURAL WATER SUPPLY .....	\$500,000	Bingaman, T. Udall
Bureau of Reclamation ....	Water and Related Resources .....	FORT PECK DRY PRAIRIE RURAL WATER SYSTEM .....	\$10,000,000	Tester, Baucus
Bureau of Reclamation ....	Water and Related Resources .....	INLAND EMPIRE REGIONAL WATER RECYCLING PROJECT .....	\$100,000	Feinstein, Boxer
Bureau of Reclamation ....	Water and Related Resources .....	IRVINE BASIN GROUND & SURFACE WATER .....	\$100,000	Feinstein
Bureau of Reclamation ....	Water and Related Resources .....	JICARILLA APACHE RESERVATION RURAL WATER SYSTEM .....	\$4,000,000	Bingaman, T. Udall
Bureau of Reclamation ....	Water and Related Resources .....	LAKE MEAD/LAS VEGAS WASH PROGRAM .....	\$1,200,000	Reid, Ensign
Bureau of Reclamation ....	Water and Related Resources .....	LAKE TAHOE REGIONAL WETLANDS .....	\$2,500,000	Reid, Feinstein
Bureau of Reclamation ....	Water and Related Resources .....	LEWIS AND CLARK RURAL WATER SYSTEM .....	\$14,000,000	Harkin, Johnson, Grassley, Klo- buchar, Thune
Bureau of Reclamation ....	Water and Related Resources .....	LOAN FOR WHITE MOUNTAIN APACHE TRIBE, AZ .....	\$3,209,000	Kyl
Bureau of Reclamation ....	Water and Related Resources .....	LOWER RIO GRANDE VALLEY WATER RESOURCES CONSERVATION PROGRAM .....	\$2,500,000	Hutchison

**CONGRESSIONALLY DIRECTED SPENDING ITEMS—Continued**

Agency	Account	Project title	Funding	Member
Bureau of Reclamation	Water and Related Resources	MIDDLE RIO GRANDE PROJECT	\$160,000	T. Udall
Bureau of Reclamation	Water and Related Resources	MILK RIVER/ST. MARY DIVERSION REHABILITATION PROJECT	\$1,500,000	Tester
Bureau of Reclamation	Water and Related Resources	MNI WICONI PROJECT	\$10,000,000	Johnson, Thune
Bureau of Reclamation	Water and Related Resources	MOKELUMNE RIVER REGIONAL WATER STORAGE & CONJUNCTIVE USE	\$500,000	Feinstein
Bureau of Reclamation	Water and Related Resources	NAVAJO GALLUP WATER SUPPLY	\$7,791,000	Bingaman, T. Udall
Bureau of Reclamation	Water and Related Resources	NORTHERN UTAH INVESTIGATIONS PROGRAM	\$500,000	Bennett
Bureau of Reclamation	Water and Related Resources	ODESSA SUBAREA SPECIAL STUDY	\$3,000,000	Murray, Cantwell
Bureau of Reclamation	Water and Related Resources	OREGON INVESTIGATIONS PROGRAM	\$150,000	Wyden, Merkley
Bureau of Reclamation	Water and Related Resources	PERKINS COUNTY RURAL WATER SYSTEM	\$1,000,000	Johnson, Thune
Bureau of Reclamation	Water and Related Resources	PICK-SLOAN MISSOURI BASIN—GARRISON DIVERSION	\$33,707,000	Dorgan, Conrad
Bureau of Reclamation	Water and Related Resources	ROCKY BOYS/NORTH CENTRAL MONTANA RURAL WATER SYSTEM	\$15,000,000	Tester, Baucus
Bureau of Reclamation	Water and Related Resources	ROGUE RIVER BASIN PROJECT, TALENT DIVISION	\$200,000	Wyden, Merkley
Bureau of Reclamation	Water and Related Resources	TUALATIN VALLEY WATER SUPPLY FEASIBILITY	\$300,000	Wyden, Merkley
Bureau of Reclamation	Water and Related Resources	WEBER BASIN PROJECT	\$1,000,000	Bennett, Hatch
Bureau of Reclamation	Water and Related Resources	WICHITA PROJECT—EQUUS BEDS DIVISION	\$2,000,000	Roberts, Brownback
Bureau of Reclamation	Water and Related Resources	YAKIMA RIVER BASIN WATER ENHANCEMENT PROJECT	\$1,500,000	Murray
Bureau of Reclamation	Water and Related Resources	BUREAU OF RECLAMATION ITEMS NOT LISTED UNDER STATES		
Bureau of Reclamation	Water and Related Resources	LOWER COLORADO RIVER OPERATIONS PROGRAM	\$680,000	Feinstein
Bureau of Reclamation	Water and Related Resources	RESEARCH AND DEVELOPMENT		
Bureau of Reclamation	Water and Related Resources	SCIENCE AND TECHNOLOGY PROGRAM	\$1,000,000	Feinstein, Bennet
Bureau of Reclamation	Water and Related Resources	TITLE XVI WATER RECLAMATION AND REUSE PROGRAM	\$2,500,000	Reid
Department of Energy	Electricity Delivery and Energy Reliability	Energy Development and Reliability (ND)	\$325,000	Senator Dorgan
Department of Energy	Electricity Delivery and Energy Reliability	Navajo Nation Electrification Program (NM)	\$1,750,000	Senators Bingaman, Tom Udall
Department of Energy	Electricity Delivery and Energy Reliability	North Dakota Energy Workforce Development (ND)	\$1,900,000	Senator Dorgan
Department of Energy	Electricity Delivery and Energy Reliability	Oswego County BOCES Wind Turbine Model Project (NY)	\$200,000	Senator Schumer
Department of Energy	Electricity Delivery and Energy Reliability	Power Grid Reliability and Security (WA)	\$1,000,000	Senators Murray, Cantwell
Department of Energy	Electricity Delivery and Energy Reliability	Technology Development (ND)	\$300,000	Senator Dorgan
Department of Energy	Electricity Delivery and Energy Reliability	UVM Smart Energy Grid Research (VT)	\$500,000	Senator Leahy
Department of Energy	Electricity Delivery and Energy Reliability	Watkins Glen, Schuyler County Gas Storage Project (NY)	\$500,000	Senator Gillibrand
Department of Energy	Energy Efficiency and Renewable Energy	21st Century Renewable Fuels, Energy, and Materials Initiative (MI)	\$1,250,000	Senators Levin, Stabenow
Department of Energy	Energy Efficiency and Renewable Energy	A123Systems Large Format Nanophosphate Batteries for Solar Energy Storage (MI)	\$1,000,000	Senators Levin, Stabenow
Department of Energy	Energy Efficiency and Renewable Energy	Algae Biofuels Research (WA)	\$2,000,000	Senators Murray, Cantwell
Department of Energy	Energy Efficiency and Renewable Energy	Algae to Ethanol Research and Evaluation (NJ)	\$750,000	Senators Lautenberg, Menendez
Department of Energy	Energy Efficiency and Renewable Energy	Algal-Based Renewable Energy for Nevada (NV)	\$800,000	Senator Reid
Department of Energy	Energy Efficiency and Renewable Energy	Alternative and Unconventional Energy Research and Development (UT)	\$10,000,000	Senator Bennett

Department of Energy .....	Energy Efficiency and Renewable Energy ....	Alternative Energy School of the Future (NV) .....	\$1,200,000	Senator Reid
Department of Energy .....	Energy Efficiency and Renewable Energy ....	Bayview Gas to Energy Project (UT) .....	\$1,000,000	Senator Bennett
Department of Energy .....	Energy Efficiency and Renewable Energy ....	Ben Franklin Technology Partners—Clean Technology Commercialization Initiative (PA).	\$500,000	Senators Specter, Casey
Department of Energy .....	Energy Efficiency and Renewable Energy ....	Biodiesel Blending (WI) .....	\$600,000	Senator Kohl
Department of Energy .....	Energy Efficiency and Renewable Energy ....	Biodiesel Feedstock Development Initiative (MO) .....	\$1,000,000	Senator Bond
Department of Energy .....	Energy Efficiency and Renewable Energy ....	Biomass Energy Resources Center (VT) .....	\$1,000,000	Senator Leahy
Department of Energy .....	Energy Efficiency and Renewable Energy ....	Black Hills State Heating and Cooling Plant (SD) .....	\$1,000,000	Senators Johnson, Thune
Department of Energy .....	Energy Efficiency and Renewable Energy ....	Cellulosic Diesel Biorefinery (NJ) .....	\$1,000,000	Senators Lautenberg, Menendez
Department of Energy .....	Energy Efficiency and Renewable Energy ....	Center for Biomass Utilization (ND) .....	\$7,000,000	Senators Dorgan, Conrad
Department of Energy .....	Energy Efficiency and Renewable Energy ....	Center for Nanoscale Energy (ND) .....	\$5,000,000	Senator Dorgan
Department of Energy .....	Energy Efficiency and Renewable Energy ....	Center for Ocean Renewable Energy .....	\$750,000	Senator Shaheen
Department of Energy .....	Energy Efficiency and Renewable Energy ....	Central Vermont Recovered Biomass Facility (VT) .....	\$500,000	Senator Leahy
Department of Energy .....	Energy Efficiency and Renewable Energy ....	Clean Power and Energy Research Consortium (LA) .....	\$1,000,000	Senator Landrieu
Department of Energy .....	Energy Efficiency and Renewable Energy ....	Commercial Building Energy Efficiency Demonstration (IL) .....	\$500,000	Senator Durbin
Department of Energy .....	Energy Efficiency and Renewable Energy ....	Cooling Heating and Power (Micro-CHP) and Bio-Fuel Application Center (MS).	\$2,000,000	Senator Cochran
Department of Energy .....	Energy Efficiency and Renewable Energy ....	Development of an Economic and Efficient Biodiesel Production Process (NC) ..	\$750,000	Senator Hagan
Department of Energy .....	Energy Efficiency and Renewable Energy ....	Development of Biofuels Using Ionic Transfer Membranes (NV) .....	\$1,500,000	Senator Reid
Department of Energy .....	Energy Efficiency and Renewable Energy ....	Development of High Yield Tropical Feedstocks and Biomass Conversion (HI) ...	\$6,000,000	Senator Inouye
Department of Energy .....	Energy Efficiency and Renewable Energy ....	DRI Renewable Energy Center [REC] (NV) .....	\$500,000	Senator Reid
Department of Energy .....	Energy Efficiency and Renewable Energy ....	Energy Storage/Conservation and Carbon Emissions Reduction Demonstration Project (MA).	\$400,000	Senators Kennedy, Kerry
Department of Energy .....	Energy Efficiency and Renewable Energy ....	EngenuitySC Commercialization and Entrepreneurial Training Project (SC) .....	\$500,000	Senator Graham
Department of Energy .....	Energy Efficiency and Renewable Energy ....	Fallon Paiute-Shoshone Tribe Demonstration Energy Park (NV) .....	\$200,000	Senator Reid
Department of Energy .....	Energy Efficiency and Renewable Energy ....	Fluid Flow Optimization of Aerogel Blanket Process Project (MA) .....	\$300,000	Senators Kennedy, Kerry
Department of Energy .....	Energy Efficiency and Renewable Energy ....	Fuel Cell Durability Research (CT) .....	\$1,000,000	Senator Dodd
Department of Energy .....	Energy Efficiency and Renewable Energy ....	Gas heat pump cooperative training program (NV) .....	\$250,000	Senator Reid
Department of Energy .....	Energy Efficiency and Renewable Energy ....	Genetic Improvement of Switchgrass (RI) .....	\$1,500,000	Senator Reed
Department of Energy .....	Energy Efficiency and Renewable Energy ....	Great Basin College—Direct-Use Geothermal Demonstration Project (NV) .....	\$1,000,000	Senator Reid
Department of Energy .....	Energy Efficiency and Renewable Energy ....	Great Lakes Institute for Energy Innovation (OH) .....	\$1,000,000	Senator Voinovich
Department of Energy .....	Energy Efficiency and Renewable Energy ....	Great Plains Wind Power Test Facility, Texas Tech University, Lubbock, TX (TX).	\$2,000,000	Senator Hutchinson
Department of Energy .....	Energy Efficiency and Renewable Energy ....	Hawaii Energy Sustainability Program (HI) .....	\$6,000,000	Senators Inouye, Akaka
Department of Energy .....	Energy Efficiency and Renewable Energy ....	Hawaii Renewable Energy Development Venture (HI) .....	\$6,000,000	Senator Inouye
Department of Energy .....	Energy Efficiency and Renewable Energy ....	High Speed Wind Turbine Noise Model with Suppression (MS) .....	\$1,000,000	Senator Cochran
Department of Energy .....	Energy Efficiency and Renewable Energy ....	Hydrogen Production and Delivery Technology (CT) .....	\$500,000	Senators Dodd, Lieberman
Department of Energy .....	Energy Efficiency and Renewable Energy ....	HyperCAST R&D Funding for Vehicle Energy Efficiency (CO) .....	\$750,000	Senator Bennett
Department of Energy .....	Energy Efficiency and Renewable Energy ....	Independent Energy Community Renewable Power System (UT) .....	\$1,000,000	Senator Bennett
Department of Energy .....	Energy Efficiency and Renewable Energy ....	Institute for Sustainable Energy (AL) .....	\$750,000	Senator Sessions



# CONGRESSIONALLY DIRECTED SPENDING ITEMS—Continued

Agency	Account	Project title	Funding	Member
Department of Energy .....	Energy Efficiency and Renewable Energy ....	Iowa Central Community College Renewable Fuel Testing Laboratory (IA) .....	\$750,000	Senator Harkin
Department of Energy .....	Energy Efficiency and Renewable Energy ....	Lane Community College Energy Demonstration Building (OR) .....	\$550,000	Sensors Wyden, Merkley
Department of Energy .....	Energy Efficiency and Renewable Energy ....	Lansing Plug-In Hybrid Initiative (MI) .....	\$750,000	Sensors Levin, Stabenow
Department of Energy .....	Energy Efficiency and Renewable Energy ....	Low Cost Production of Thin-film Photovoltaic (PV) Cells (PA) .....	\$1,200,000	Sensor Specter
Department of Energy .....	Energy Efficiency and Renewable Energy ....	Marine Energy Technology (WA) .....	\$1,750,000	Sensor Murray
Department of Energy .....	Energy Efficiency and Renewable Energy ....	MidSouth/Southeast BioEnergy Consortium (AR) .....	\$1,000,000	Sensors Lincoln, Pryor
Department of Energy .....	Energy Efficiency and Renewable Energy ....	Montana Algal BioDiesel Initiative (MT) .....	\$500,000	Sensors Baucus, Tester
Department of Energy .....	Energy Efficiency and Renewable Energy ....	Montana Bio-Energy Center of Excellence (MT) .....	\$2,250,000	Sensors Baucus, Tester
Department of Energy .....	Energy Efficiency and Renewable Energy ....	Nanostructured Materials for Improved Photovoltaics (MS) .....	\$1,000,000	Sensor Cochran
Department of Energy .....	Energy Efficiency and Renewable Energy ....	Nanostructured Solar Cells for Increased Efficiency and Lower Cost (AR) .....	\$500,000	Sensors Lincoln, Pryor
Department of Energy .....	Energy Efficiency and Renewable Energy ....	National Center of Excellence in Energy Storage Technology (OH) .....	\$1,000,000	Sensor Voinovich
Department of Energy .....	Energy Efficiency and Renewable Energy ....	National Open—Ocean Energy Laboratory (FL) .....	\$2,000,000	Sensors Bill Nelson, Martinez
Department of Energy .....	Energy Efficiency and Renewable Energy ....	National Wind Energy Center, University of Houston, Houston, TX (TX) .....	\$2,000,000	Sensor Hutchinson
Department of Energy .....	Energy Efficiency and Renewable Energy ....	Near zero carbon footprint energy creation through thermal oxidation (PA) .....	\$1,000,000	Sensor Specter
Department of Energy .....	Energy Efficiency and Renewable Energy ....	Nevada Renewable Energy Integration and Development Consortium (NV) .....	\$3,000,000	Sensor Reid
Department of Energy .....	Energy Efficiency and Renewable Energy ....	NIREC—Nevada Institute for Renewable Energy Commercialization (NV) .....	\$1,000,000	Sensor Reid
Department of Energy .....	Energy Efficiency and Renewable Energy ....	Northern Nevada Renewable Energy Training Project (NV) .....	\$500,000	Sensor Reid
Department of Energy .....	Energy Efficiency and Renewable Energy ....	Norwich Cogeneration Initiative (CT) .....	\$750,000	Sensors Dodd, Lieberman
Department of Energy .....	Energy Efficiency and Renewable Energy ....	Novel Photocatalytic Metal Oxides (NE) .....	\$250,000	Sensor Ben Nelson
Department of Energy .....	Energy Efficiency and Renewable Energy ....	Offshore Wind Initiative (ME) .....	\$5,000,000	Sensors Collins, Snowe
Department of Energy .....	Energy Efficiency and Renewable Energy ....	Ohio Advanced Energy Manufacturing Center (OH) .....	\$500,000	Sensor Brown
Department of Energy .....	Energy Efficiency and Renewable Energy ....	Oregon Solar Highway—Innovative Use of Solar Technology (OR) .....	\$1,000,000	Sensors Wyden, Merkley
Department of Energy .....	Energy Efficiency and Renewable Energy ....	Placer County Biomass Utilization Pilot Project (CA) .....	\$1,000,000	Sensor Feinstein
Department of Energy .....	Energy Efficiency and Renewable Energy ....	Power Cube for Wind Power and Grid Regulation Services (PA) .....	\$500,000	Sensor Specter
Department of Energy .....	Energy Efficiency and Renewable Energy ....	Renewable Energy Clean Air Project [RECAP] (MN) .....	\$1,000,000	Sensor Klobuchar
Department of Energy .....	Energy Efficiency and Renewable Energy ....	Renewable Energy Demonstration (IL) .....	\$500,000	Sensor Durbin
Department of Energy .....	Energy Efficiency and Renewable Energy ....	Renewable Energy Feasibility Study and Resources Assessment (NV) .....	\$500,000	Sensor Reid
Department of Energy .....	Energy Efficiency and Renewable Energy ....	Renewable Energy Initiative (IL) .....	\$500,000	Sensor Durbin
Department of Energy .....	Energy Efficiency and Renewable Energy ....	Renewable Energy Initiatives for Clark County, Nevada Parks and Recreation (NV) .....	\$1,000,000	Sensor Reid
Department of Energy .....	Energy Efficiency and Renewable Energy ....	Research on Fuel Cell Powered by Hydrogen Produced from Biomass to Provide Clean Energy for Remote Farms away from Electric Grids (NY) .....	\$675,000	Sensor Schumer
Department of Energy .....	Energy Efficiency and Renewable Energy ....	San Francisco Electric Vehicle Infrastructure Initiative (CA) .....	\$500,000	Sensor Boxer
Department of Energy .....	Energy Efficiency and Renewable Energy ....	Shenandoah Valley as a National Demonstration Project Achieving 25 Percent Renewable Energy by the Year 2025 (VA) .....	\$750,000	Sensors Webb, Warner
Department of Energy .....	Energy Efficiency and Renewable Energy ....	Smart Energy Program (CT) .....	\$500,000	Sensors Dodd, Lieberman

Department of Energy .....	Energy Efficiency and Renewable Energy ....	Solar Compactor Energy Efficiency Research Demonstration Project (MA) .....	\$300,000	Senators Kennedy, Kerry
Department of Energy .....	Energy Efficiency and Renewable Energy ....	Solar Energy Development, University of Maine, Presque Isle, ME .....	\$800,000	Senator Collins
Department of Energy .....	Energy Efficiency and Renewable Energy ....	Solar Electric Power for Nonsectarian Educational and Social Services Facility (NV).	\$500,000	Senator Reid
Department of Energy .....	Energy Efficiency and Renewable Energy ....	Solar Energy Zone Planning and Infrastructure for the Nevada Test Site and Adjacent Lands (NV).	\$1,000,000	Senator Reid
Department of Energy .....	Energy Efficiency and Renewable Energy ....	Solar Panels in Municipal Owned Buildings (NJ) .....	\$1,000,000	Senators Lautenberg, Menendez
Department of Energy .....	Energy Efficiency and Renewable Energy ....	Solar Pioneer and Solar Entrepreneur Programs (NY) .....	\$500,000	Senator Gillibrand
Department of Energy .....	Energy Efficiency and Renewable Energy ....	Southern Pine Based Biorefinery Center (GA) .....	\$1,000,000	Senator Chambliss
Department of Energy .....	Energy Efficiency and Renewable Energy ....	Southern Regional Center for Lightweight Innovative Designs (MS) .....	\$4,000,000	Senator Cochran
Department of Energy .....	Energy Efficiency and Renewable Energy ....	Southwest Alaska Regional Geothermal Energy Project (AK) .....	\$2,500,000	Senators Murkowski, Begich
Department of Energy .....	Energy Efficiency and Renewable Energy ....	Strategic Biomass Initiative (MS) .....	\$500,000	Senator Cochran
Department of Energy .....	Energy Efficiency and Renewable Energy ....	Student Sustainability Initiatives (VT) .....	\$300,000	Senator Sanders
Department of Energy .....	Energy Efficiency and Renewable Energy ....	Sun Grant Initiative (SD) .....	\$2,750,000	Senator Johnson
Department of Energy .....	Energy Efficiency and Renewable Energy ....	Sustainable Energy Research Center (MS) .....	\$10,000,000	Senator Cochran
Department of Energy .....	Energy Efficiency and Renewable Energy ....	Switchgrass Biofuel Research: Carbon Sequestration and Life Cycle Analysis (NE).	\$500,000	Senator Ben Nelson
Department of Energy .....	Energy Efficiency and Renewable Energy ....	The CUNY Energy Institute (NY) .....	\$1,550,000	Senators Schumer, Gillibrand
Department of Energy .....	Energy Efficiency and Renewable Energy ....	Thin Film Photovoltaic Research & Development (VT) .....	\$500,000	Senator Leahy
Department of Energy .....	Energy Efficiency and Renewable Energy ....	Unconventional and Renewable Energies Research Utilizing Computer Simulations (UT).	\$2,500,000	Senator Bennett
Department of Energy .....	Energy Efficiency and Renewable Energy ....	University of Louisville Research and Energy Independence Program (KY) .....	\$2,000,000	Senator McConnell
Department of Energy .....	Energy Efficiency and Renewable Energy ....	University of New Haven Solar Testing and Training Lab (CT) .....	\$500,000	Senators Dodd, Lieberman
Department of Energy .....	Energy Efficiency and Renewable Energy ....	UNR—Biodiesel from Food Waste (NV) .....	\$1,000,000	Senator Reid
Department of Energy .....	Energy Efficiency and Renewable Energy ....	UNR—Great Basin Center for Geothermal Energy (NV) .....	\$1,000,000	Senator Reid
Department of Energy .....	Energy Efficiency and Renewable Energy ....	UNR—Mass Exchanger Technology for Geothermal and Solar Energy Systems (NV).	\$1,200,000	Senator Reid
Department of Energy .....	Energy Efficiency and Renewable Energy ....	Vermont Biofuels Initiative (VT) .....	\$750,000	Senator Leahy
Department of Energy .....	Energy Efficiency and Renewable Energy ....	Vermont Energy Investment Corporation (VT) .....	\$450,000	Senator Sanders
Department of Energy .....	Energy Efficiency and Renewable Energy ....	Wallowa County Integrated Biomass Energy Center (OR) .....	\$500,000	Senators Wyden, Merkley
Department of Energy .....	Energy Efficiency and Renewable Energy ....	Washoe Wind Turbine Demonstration Project (NV) .....	\$50,000	Senator Reid
Department of Energy .....	Energy Efficiency and Renewable Energy ....	Wind Turbine Development (MT) .....	\$1,000,000	Senators Baucus, Tester
Department of Energy .....	Energy Efficiency and Renewable Energy ....	Wind Turbine Infrastructure for Green Energy and Research on Wind Power in Delaware (DE).	\$1,000,000	Senators Carper, Kaufman
Department of Energy .....	Environmental Management—Defense .....	Characteristics and Cleanup of the U.S. Nuclear Legacy (MS) .....	\$4,000,000	Senator Cochran
Department of Energy .....	Fossil Energy .....	Design and Test of an Advanced SOFC Generator in PA (PA) .....	\$1,000,000	Senator Specter
Department of Energy .....	Fossil Energy .....	Fossil Fuel Research and Development (ND) .....	\$4,000,000	Senators Dorgan, Conrad
Department of Energy .....	Fossil Energy .....	Gulf of Mexico Hydrates Research Consortium (MS) .....	\$1,200,000	Senator Cochran
Department of Energy .....	Fossil Energy .....	Hydrogen Fuel Dispensing Station (WV) .....	\$1,200,000	Senator Byrd

**CONGRESSIONALLY DIRECTED SPENDING ITEMS—Continued**

Agency	Account	Project title	Funding	Member
Department of Energy	Fossil Energy	Long Term Environmental and Economic Impacts of the Development of a Coal Liquefaction Sector in China (WV)	\$1,250,000	Senator Byrd
Department of Energy	Fossil Energy	Montana ICTL Demonstration (MT)	\$1,250,000	Senator Baucus
Department of Energy	Fossil Energy	National Center for Hydrogen Technology (ND)	\$3,000,000	Senators Dorgan, Conrad
Department of Energy	Fossil Energy	Shale Oil Upgrading Utilizing Ionic Membranes (UT)	\$1,500,000	Senator Bennett
Department of Energy	Fossil Energy	Shallow Carbon Sequestration Pilot Demonstration (MO)	\$2,400,000	Senator Bond
Department of Energy	Fossil Energy	Utah Center for Ultra-Clean Coal Utilization and Heavy Oil Research (UT)	\$8,000,000	Senator Bennett
Department of Energy	Fossil Energy	Utah Coal and Biomass to Fuel Pilot Plant	\$2,500,000	Senator Bennett
Department of Energy	Nuclear Energy	Nuclear Fabrication Consortium (OH)	\$2,000,000	Senator Voinovich
Department of Energy	Office of Science	Advanced Manufacturing and Engineering Equipment (IN)	\$1,000,000	Senator Lugar
Department of Energy	Office of Science	Alaska Climate Center (AK)	\$1,000,000	Senator Murkowski
Department of Energy	Office of Science	Antibodies Research (ND)	\$3,000,000	Senators Dorgan, Conrad
Department of Energy	Office of Science	Carbon Nanotube Technology Center [CANTEC] (OK)	\$1,000,000	Senator Inhofe
Department of Energy	Office of Science	Center for Advanced Bio-Based Binders and Pollution Reduction Technologies at the University of Northern Iowa (IA)	\$950,000	Senators Harkin, Grassley
Department of Energy	Office of Science	Center for Diagnostic Nanosystems (WV)	\$3,000,000	Senator Byrd
Department of Energy	Office of Science	Center of Excellence and Hazardous Materials (NM)	\$750,000	Senators Bingaman, Tom Udall
Department of Energy	Office of Science	Clean Energy Infrastructure Educational Initiative (OH)	\$500,000	Senator Brown
Department of Energy	Office of Science	Climate Model Evaluation Program (AL)	\$1,800,000	Senator Shelby
Department of Energy	Office of Science	Computing Capability (ND)	\$5,000,000	Senators Dorgan, Conrad
Department of Energy	Office of Science	Development of Ultrafiltration Membrane-Separation Technology for Energy-Efficient Water Treatment and Desalination Process (NV)	\$800,000	Senator Reid
Department of Energy	Office of Science	Enhancement for the Intermountain Center for River Restoration and Rehabilitation (UT)	\$600,000	Senator Bennett
Department of Energy	Office of Science	Environmental Quality Monitoring and Analysis (IL)	\$500,000	Senator Durbin
Department of Energy	Office of Science	Fuel Cell Research, Brown University, RI (RI)	\$1,500,000	Senators Reed, Whitehouse
Department of Energy	Office of Science	Functional MRI Research (VT)	\$1,200,000	Senator Leahy
Department of Energy	Office of Science	Idaho Accelerator Center Production of Medical Isotopes (ID)	\$1,500,000	Senators Crapo, Risch
Department of Energy	Office of Science	Kansas University Cancer Research Equipment (KS)	\$4,000,000	Senators Brownback, Roberts
Department of Energy	Office of Science	Marine Systems Energy/Environmental Sustainability Research (MA)	\$300,000	Senators Kennedy, Kerry
Department of Energy	Office of Science	Martin County Microfiber Hydrogen Fuel Cell Technology Development (NC)	\$1,000,000	Senators Burr, Hagen
Department of Energy	Office of Science	Material Science Smart Coatings (NE)	\$500,000	Senator Ben Nelson
Department of Energy	Office of Science	Nanotechnology Initiative (CT)	\$750,000	Senators Dodd, Lieberman
Department of Energy	Office of Science	Nevada Water Resources Data, Modeling, and Visualization Center [CAVE] (NV)	\$500,000	Senator Reid
Department of Energy	Office of Science	Performance Assessment Institute (NV)	\$1,000,000	Senator Reid

Department of Energy .....	Office of Science .....	Pioneer Valley Life Science Institute Translational Biomedical Research (MA) ...	\$400,000	Senators Kennedy, Kerry
Department of Energy .....	Office of Science .....	Renovation and Development of the LSU Nuclear Science Building (LA) .....	\$1,000,000	Senators Landrieu, Vitter
Department of Energy .....	Office of Science .....	RNAI Research (MA) .....	\$300,000	Senators Kennedy, Kerry
Department of Energy .....	Office of Science .....	Science Center Equipment and Energy Efficient LEED Technology (UT) .....	\$900,000	Senator Bennett
Department of Energy .....	Office of Science .....	Smart Grid Communications Security Project (CO) .....	\$1,000,000	Senator Mark Udall
Department of Energy .....	Office of Science .....	SUU Science Center Energy Efficiency Modernization and Enhancement Project (UT).	\$1,000,000	Senator Bennett
Department of Energy .....	Office of Science .....	Targeted Radiotherapy for Melanoma (MA) .....	\$300,000	Senators Kennedy, Kerry
Department of Energy .....	Office of Science .....	Technology Transfer & Commercialization of Technologies at DOE Laboratories. (NM).	\$750,000	Senator Bingaman
Department of Energy .....	Office of Science .....	The New School Green Building (NY) .....	\$1,000,000	Senators Schumer, Gillibrand
Department of Energy .....	Office of Science .....	USD Catalysis Group for Alternative Energy (SD) .....	\$1,100,000	Senator Johnson
Department of Energy .....	Office of Science .....	Yttrium-90 Microspheres Research (WA) .....	\$1,250,000	Senator Murray
Department of Energy .....	Other Defense Activities .....	Burlington Atomic Energy Commission Plant [BAECP] and Ames Laboratory Former Workers Medical Surveillance Programs [FWP] (IA).	\$1,000,000	Senator Harkin
Department of Energy .....	Other Defense Activities .....	Medical Monitoring at Paducah, KY, Portsmouth, OH, and Oak Ridge, TN (KY, OH, TN).	\$1,000,000	Senator McConnell

#### PRESIDENTIALLY DIRECTED SPENDING ITEMS

Agency	Account	Project title	Funding	Member
Corps of Engineers .....	Construction, General .....	AIWW, BRIDGES AT DEEP CREEK, VA .....	.....	The President
Corps of Engineers .....	Construction, General .....	ALTON TO GALE LEVEE DISTRICT, IL & MO (DEF CORR) .....	\$300,000	The President
Corps of Engineers .....	Construction, General .....	AMERICAN RIVER WATERSHED (COMMON FEATURES), CA .....	\$6,700,000	The President
Corps of Engineers .....	Construction, General .....	AMERICAN RIVER WATERSHED (FOLSOM DAM MODIFICATIONS), CA .....	\$66,700,000	The President
Corps of Engineers .....	Construction, General .....	AMERICAN RIVER WATERSHED (FOLSOM DAM RAISE), CA .....	\$600,000	The President
Corps of Engineers .....	Construction, General .....	ANTELOPE CREEK, NE .....	\$5,697,000	The President
Corps of Engineers .....	Construction, General .....	ATLANTIC COAST OF NYC, ROCKAWAY INLET TO NORTON POINT, NY .....	\$3,000,000	The President
Corps of Engineers .....	Construction, General .....	BLUE RIVER CHANNEL, KANSAS CITY, MO .....	\$5,600,000	The President
Corps of Engineers .....	Construction, General .....	BLUESTONE LAKE, WV .....	\$86,700,000	The President
Corps of Engineers .....	Construction, General .....	BRAYS BAYOU, HOUSTON, TX .....	\$5,300,000	The President
Corps of Engineers .....	Construction, General .....	CANTON LAKE, OK (DAM SAFETY) .....	\$24,250,000	The President
Corps of Engineers .....	Construction, General .....	CAROLINA BEACH AND VICINITY, NC .....	\$1,500,000	The President
Corps of Engineers .....	Construction, General .....	CEDAR HAMMOCK, WARES CREEK, FL .....	\$5,565,000	The President
Corps of Engineers .....	Construction, General .....	CENTER HILL DAM (SEEPAGE CONTROL), TN .....	\$56,000,000	The President
Corps of Engineers .....	Construction, General .....	CHAIN OF ROCKS CANAL, MISSISSIPPI RIVER, IL (DEF CORR) .....	\$6,500,000	The President
Corps of Engineers .....	Construction, General .....	CHESTERFIELD, MO .....	\$3,331,000	The President
Corps of Engineers .....	Construction, General .....	CHICAGO SANITARY AND SHIP CANAL, DISPERSAL BARRIER, IL .....	\$5,000,000	The President
Corps of Engineers .....	Construction, General .....	CHICKAMAUGA LOCK, TENNESSEE RIVER, TN .....	\$1,000,000	The President

**PRESIDENTIALLY DIRECTED SPENDING ITEMS—Continued**

Agency	Account	Project title	Funding	Member
Corps of Engineers	Construction, General	CHIEF JOSEPH GAS ABATEMENT, WA	\$1,000,000	The President
Corps of Engineers	Construction, General	CLEARWATER LAKE, MO (SEEPAGE CONTROL)	\$40,000,000	The President
Corps of Engineers	Construction, General	COLUMBIA RIVER FISH MITIGATION, OR & WA	\$85,000,000	The President
Corps of Engineers	Construction, General	COLUMBIA RIVER TREATY FISHING ACCESS SITES, OR & WA	\$500,000	The President
Corps of Engineers	Construction, General	DES PLAINES RIVER, IL	\$6,800,000	The President
Corps of Engineers	Construction, General	DOVER DAM, MUSKINGUM RIVER, OH (DAM SAFETY ASSURANCE)	\$18,500,000	The President
Corps of Engineers	Construction, General	DUWAMISH AND GREEN RIVER BASIN, WA	\$2,600,000	The President
Corps of Engineers	Construction, General	EAST ST. LOUIS, IL	\$2,000,000	The President
Corps of Engineers	Construction, General	ELK CREEK LAKE, OR	\$500,000	The President
Corps of Engineers	Construction, General	EMSWORTH L&D, OHIO RIVER, PA (STATIC INSTABILITY CORRECTION)	\$25,000,000	The President
Corps of Engineers	Construction, General	FIRE ISLAND INLET TO MONTAUK POINT, NY	\$5,800,000	The President
Corps of Engineers	Construction, General	GARRISON DAM AND POWER PLANT, ND (REPLACEMENT)	\$8,620,000	The President
Corps of Engineers	Construction, General	GREAT EGG HARBOR INLET & PECK BEACH, NJ	\$6,500,000	The President
Corps of Engineers	Construction, General	HAMILTON AIRFIELD WETLANDS RESTORATION, CA	\$14,250,000	The President
Corps of Engineers	Construction, General	HERBERT HOOVER DIKE, FL (SEEPAGE CONTROL)	\$130,000,000	The President
Corps of Engineers	Construction, General	HOWARD HANSEN DAM, WA	\$13,000,000	The President
Corps of Engineers	Construction, General	J. BENNETT JOHNSTON WATERWAY, LA	\$7,000,000	The President
Corps of Engineers	Construction, General	JOHN H. KERR DAM AND RESERVOIR, VA & NC (REPLACEMENT)	\$16,915,000	The President
Corps of Engineers	Construction, General	KANSAS CITIES, MO & KS		The President
Corps of Engineers	Construction, General	KAWEAH RIVER, CA	\$640,000	The President
Corps of Engineers	Construction, General	KENTUCKY LOCK AND DAM, TENNESSEE RIVER, KY	\$1,000,000	The President
Corps of Engineers	Construction, General	LAROSE TO GOLDEN MEADOW, LA (CG)	\$5,800,000	The President
Corps of Engineers	Construction, General	LITTLE CALUMET RIVER, IN	\$20,000,000	The President
Corps of Engineers	Construction, General	LOCKS AND DAMS 2, 3 AND 4, MONONGAHELA RIVER, PA	\$6,210,000	The President
Corps of Engineers	Construction, General	LONG BEACH ISLAND, NY	\$700,000	The President
Corps of Engineers	Construction, General	LOS ANGELES HARBOR MAIN CHANNEL DEEPENING, CA	\$885,000	The President
Corps of Engineers	Construction, General	LOWER COLUMBIA RIVER ECOSYSTEM RESTORATION, WA, OR	\$1,650,000	The President
Corps of Engineers	Construction, General	LOWER SNAKE RIVER FISH AND WILDLIFE COMP, WA, OR, ID	\$1,500,000	The President
Corps of Engineers	Construction, General	MARKLAND LOCKS AND DAM, KY, IL (MAJOR REHAB)	\$1,000,000	The President
Corps of Engineers	Construction, General	MARTIN COUNTY, FL	\$350,000	The President
Corps of Engineers	Construction, General	MCCOOK AND THORNTON RESERVOIRS, IL	\$25,000,000	The President
Corps of Engineers	Construction, General	MISS RIVER BTWN THE OHIO AND MO RIVERS (REG WORKS), MO & IL	\$580,000	The President
Corps of Engineers	Construction, General	MISSOURI RIVER FISH MITIGATION, IA, KS, MO, MT, NE	\$60,000,000	The President
Corps of Engineers	Construction, General	MT. ST. HELENS SEDIMENT CONTROL, WA	\$1,500,000	The President
Corps of Engineers	Construction, General	MUD MOUNTAIN DAM, WA	\$400,000	The President
Corps of Engineers	Construction, General	MUDDY RIVER, MA	\$5,000,000	The President

Corps of Engineers .....	Construction, General .....	NAPA RIVER SALT MARSH RESTORATION, CA .....		The President
Corps of Engineers .....	Construction, General .....	NAPA RIVER, CA .....	\$1,000,000	The President
Corps of Engineers .....	Construction, General .....	NEW YORK AND NEW JERSEY HARBOR, NY & NJ .....	\$60,000,000	The President
Corps of Engineers .....	Construction, General .....	NORFOLK HARBOR, CRANEY ISLAND, VA .....		The President
Corps of Engineers .....	Construction, General .....	OAKLAND HARBOR (50 FOOT PROJECT), CA .....	\$1,000,000	The President
Corps of Engineers .....	Construction, General .....	OLMSTED LOCKS AND DAM, OHIO RIVER, IL & KY .....	\$105,000,000	The President
Corps of Engineers .....	Construction, General .....	PINELLAS COUNTY, FL .....	\$6,000,000	The President
Corps of Engineers .....	Construction, General .....	PORTUGUES AND BUCANA RIVERS, PR .....	\$42,000,000	The President
Corps of Engineers .....	Construction, General .....	PRESQUE ISLE, PA .....	\$1,000,000	The President
Corps of Engineers .....	Construction, General .....	RARITAN RIVER BASIN, GREEN BROOK SUB-BASIN, NJ .....	\$7,000,000	The President
Corps of Engineers .....	Construction, General .....	RICHARD B RUSSELL DAM AND LAKE, GA & SC .....	\$1,615,000	The President
Corps of Engineers .....	Construction, General .....	RIO GRANDE FLOODWAY, SAN ACACIA TO BOSQUE DEL APACHE, NM .....	\$800,000	The President
Corps of Engineers .....	Construction, General .....	RIO PUERTO NUEVO, PR .....	\$5,000,000	The President
Corps of Engineers .....	Construction, General .....	ROANOKE RIVER UPPER BASIN, HEADWATERS AREA, VA .....	\$1,075,000	The President
Corps of Engineers .....	Construction, General .....	SACRAMENTO DEEPWATER SHIP CHANNEL, CA .....	\$10,000,000	The President
Corps of Engineers .....	Construction, General .....	SACRAMENTO RIVER BANK PROTECTION PROJECT, CA .....	\$15,000,000	The President
Corps of Engineers .....	Construction, General .....	SANTA ANA RIVER MAINSTEM, CA .....	\$52,193,000	The President
Corps of Engineers .....	Construction, General .....	SAVANNAH HARBOR, GA .....	\$1,000,000	The President
Corps of Engineers .....	Construction, General .....	SIMS BAYOU, HOUSTON, TX .....	\$18,000,000	The President
Corps of Engineers .....	Construction, General .....	SOUTH FLORIDA EVERGLADES ECOSYSTEM RESTORATION, FL .....	\$163,402,000	The President
Corps of Engineers .....	Construction, General .....	SOUTH SACRAMENTO COUNTY STREAMS, CA .....	\$2,500,000	The President
Corps of Engineers .....	Construction, General .....	ST. LOUIS FLOOD PROTECTION, MO .....	\$566,000	The President
Corps of Engineers .....	Construction, General .....	ST. PAUL HARBOR, AK .....	\$3,000,000	The President
Corps of Engineers .....	Construction, General .....	SUCCESS DAM, TULE RIVER (DAM SAFETY), CA .....	\$10,000,000	The President
Corps of Engineers .....	Construction, General .....	TEXAS CITY CHANNEL, TX .....	\$6,000,000	The President
Corps of Engineers .....	Construction, General .....	TURKEY CREEK BASIN, KS & MO .....	\$3,500,000	The President
Corps of Engineers .....	Construction, General .....	UPPER MISSISSIPPI RIVER RESTORATION, IL, IA, MN, MO & WI .....	\$18,000,000	The President
Corps of Engineers .....	Construction, General .....	WASHINGTON, DC & VICINITY .....		The President
Corps of Engineers .....	Construction, General .....	WEST ONSLOW BEACH AND NEW RIVER INLET, NC .....	\$400,000	The President
Corps of Engineers .....	Construction, General .....	WEST SACRAMENTO, CA .....		The President
Corps of Engineers .....	Construction, General .....	WILLAMETTE TEMPERATURE CONTROL, OR .....	\$11,000,000	The President
Corps of Engineers .....	Construction, General .....	WILMINGTON HARBOR, NC .....	\$1,800,000	The President
Corps of Engineers .....	Construction, General .....	WOLF CREEK DAM, LAKE CUMBERLAND, KY (SEEPAGE CONTROL) .....	\$123,000,000	The President
Corps of Engineers .....	Construction, General .....	WOOD RIVER LEVEE, IL .....	\$1,170,000	The President
Corps of Engineers .....	Construction, General .....	CONSTRUCTION, GENERAL ITEMS NOT LISTED UNDER STATES .....		
Corps of Engineers .....	Construction, General .....	AQUATIC PLANT CONTROL .....	\$5,000,000	The President
Corps of Engineers .....	Construction, General .....	CONTINUING AUTHORITIES PROGRAM .....		
Corps of Engineers .....	Construction, General .....	AQUATIC ECOSYSTEM RESTORATION (SECTION 206) .....	\$25,000,000	The President
Corps of Engineers .....	Construction, General .....	Goose Creek, CO .....		The President
Corps of Engineers .....	Construction, General .....	Jackson Creek, Gwinnett Co, GA .....		The President

**PRESIDENTIALLY DIRECTED SPENDING ITEMS—Continued**

Agency	Account	Project title	Funding	Member
Corps of Engineers	Construction, General	Little River Watershed, Hall County, GA		The President
Corps of Engineers	Construction, General	Chariton River and Rathbun Lake Watershed, IA		The President
Corps of Engineers	Construction, General	Emiquon Preserve, IL		The President
Corps of Engineers	Construction, General	Orland Park, IL		The President
Corps of Engineers	Construction, General	Storm Lake, IA		The President
Corps of Engineers	Construction, General	Ventura Marsh, IA		The President
Corps of Engineers	Construction, General	Malden River Ecosystem, MA		The President
Corps of Engineers	Construction, General	Wilson Bay Restoration, Jacksonville, NC		The President
Corps of Engineers	Construction, General	Drayton Dam, ND		The President
Corps of Engineers	Construction, General	Camp Creek, Zumwalt Prairie Preserve, OR		The President
Corps of Engineers	Construction, General	Eugene Delta Ponds, OR		The President
Corps of Engineers	Construction, General	Kellogg Creek, OR		The President
Corps of Engineers	Construction, General	Oaks Bottom, OR		The President
Corps of Engineers	Construction, General	Springfield Millrace, OR		The President
Corps of Engineers	Construction, General	Moses Lake, TX		The President
Corps of Engineers	Construction, General	Rio Grande Ecosystem Restoration, Laredo, TX		The President
Corps of Engineers	Construction, General	Spring Lake, San Marcos, TX		The President
Corps of Engineers	Construction, General	Stephenville WWTP, TX		The President
Corps of Engineers	Construction, General	Carpenter Creek, WA		The President
Corps of Engineers	Construction, General	Beneficial Uses of Dredged Material (Sections 204, 207, 933)		
Corps of Engineers	Construction, General	Blackhawk Bottoms, IA		The President
Corps of Engineers	Construction, General	Atchafalaya River, Shell Island Pass, St. Mary Parish, LA		The President
Corps of Engineers	Construction, General	Calc Rv, Mi 5—14 Ks, LA		The President
Corps of Engineers	Construction, General	Cape Cod Canal, Sandwich, MA		The President
Corps of Engineers	Construction, General	Newbury Harbor, MA		The President
Corps of Engineers	Construction, General	NIJWW Beneficial Use of Dredge, NJ		The President
Corps of Engineers	Construction, General	Buffalo River, NY		The President
Corps of Engineers	Construction, General	Manteo Old House, NC		The President
Corps of Engineers	Construction, General	Maumee Bay Regional Sediment Management, OH		The President
Corps of Engineers	Construction, General	Wynn Road Regional Sediment management, OH		The President
Corps of Engineers	Construction, General	South Padre Island, TX		The President
Corps of Engineers	Construction, General	EMERGENCY STREAMBANK AND SHORELINE PROTECTION (SECTION 14)	\$7,000,000	The President
Corps of Engineers	Construction, General	FLOOD CONTROL PROJECTS (SECTION 205)	\$38,000,000	The President
Corps of Engineers	Construction, General	Wynne, AR		The President
Corps of Engineers	Construction, General	Mad Creek, Muscatine, IA		The President
Corps of Engineers	Construction, General	Eureka Creek, Manhattan, KS		The President

Corps of Engineers .....	Construction, General .....	Little River Diversion, Dutchtown, MO .....		The President
Corps of Engineers .....	Construction, General .....	Livingston, MT .....		The President
Corps of Engineers .....	Construction, General .....	Platt River, Fremont, NE .....		The President
Corps of Engineers .....	Construction, General .....	Platt River, Schuyler, NE .....		The President
Corps of Engineers .....	Construction, General .....	Blanchard River, Ottawa, OH (Ottawa, OH) .....		The President
Corps of Engineers .....	Construction, General .....	Duck Creek, OH .....		The President
Corps of Engineers .....	Construction, General .....	Findlay, OH .....		The President
Corps of Engineers .....	Construction, General .....	Rio Desclabrado, PR .....		The President
Corps of Engineers .....	Construction, General .....	Rio Guamani-Guaya, PR .....		The President
Corps of Engineers .....	Construction, General .....	Beaver Creek and Tribes, Bristol, TN .....		The President
Corps of Engineers .....	Construction, General .....	WV Statewide Flood Warning System, WV .....		The President
Corps of Engineers .....	Construction, General .....	NAVIGATION PROGRAM (SECTION 107) .....	\$7,000,000	The President
Corps of Engineers .....	Construction, General .....	Savoonga Harbor, AK .....		The President
Corps of Engineers .....	Construction, General .....	Bucks Harbor, Machiasport, ME .....		The President
Corps of Engineers .....	Construction, General .....	Mackinac Island Harbor Breakwater, MI .....		The President
Corps of Engineers .....	Construction, General .....	Mitigation of Shore Damages (Section 111) .....		The President
Corps of Engineers .....	Construction, General .....	Mobile Pass, AL .....		The President
Corps of Engineers .....	Construction, General .....	East Pass Channel, Panama City, FL .....		The President
Corps of Engineers .....	Construction, General .....	Brun Harbor/Jekyll Improvements, GA .....		The President
Corps of Engineers .....	Construction, General .....	Camp Ellis, Saco, ME .....		The President
Corps of Engineers .....	Construction, General .....	Manistee Harbor and River Channel, MI .....		The President
Corps of Engineers .....	Construction, General .....	Fairport Harbor, OH .....		The President
Corps of Engineers .....	Construction, General .....	Vermillion Harbor, OH .....		The President
Corps of Engineers .....	Construction, General .....	Whitcomb Flats, WA .....		The President
Corps of Engineers .....	Construction, General .....	PROJECT MODS FOR IMPROVEMENT OF THE ENVIRONMENT (SECTION 1135) .....	\$25,000,000	The President
Corps of Engineers .....	Construction, General .....	Lower Kingman Island, DC .....		The President
Corps of Engineers .....	Construction, General .....	Braided Reach, ID .....		The President
Corps of Engineers .....	Construction, General .....	Shorty's Island, ID .....		The President
Corps of Engineers .....	Construction, General .....	Green River Dam Mod, KY .....		The President
Corps of Engineers .....	Construction, General .....	Bloomington State Park, MO .....		The President
Corps of Engineers .....	Construction, General .....	Blue Valley Wetlands, Jackson County, MO .....		The President
Corps of Engineers .....	Construction, General .....	Duck Creek, Stoddard County, MO .....		The President
Corps of Engineers .....	Construction, General .....	Aquatic Habitat Restoration at Pueblo of Santa Ana, NM .....		The President
Corps of Engineers .....	Construction, General .....	Prison Farm Shoreline Habitat, ND .....		The President
Corps of Engineers .....	Construction, General .....	Tappan Lake, OH .....		The President
Corps of Engineers .....	Construction, General .....	Lower Columbia Slough, OR .....		The President
Corps of Engineers .....	Construction, General .....	Walla Walla River, OR .....		The President
Corps of Engineers .....	Construction, General .....	Bennington Lake Diversion Dam, WA .....		The President
Corps of Engineers .....	Construction, General .....	Shore Protection (Section 103) .....		
Corps of Engineers .....	Construction, General .....	Coastal Areas, Marshfield, MA .....		The President



**PRESIDENTIALLY DIRECTED SPENDING ITEMS—Continued**

Agency	Account	Project title	Funding	Member
Corps of Engineers .....	Construction, General .....	Fort San Geronimo, PR .....	.....	The President
Corps of Engineers .....	Construction, General .....	Lincoln Park Beach, WA .....	.....	The President
Corps of Engineers .....	Construction, General .....	Snagging and Clearing (Section 208) .....	.....	
Corps of Engineers .....	Construction, General .....	Camp Bayou Canal, Morehouse Parish, LA .....	.....	The President
Corps of Engineers .....	Construction, General .....	Snagging and Clearing Upper Bayou Boeuf, LA .....	.....	The President
Corps of Engineers .....	Construction, General .....	Auglaize River, OH .....	.....	The President
Corps of Engineers .....	Construction, General .....	Blackwell Lake, Blackwell, OK .....	.....	The President
Corps of Engineers .....	Construction, General .....	SWCD Flood Reduction, OR .....	.....	The President
Corps of Engineers .....	Construction, General .....	DAM SAFETY AND SEEPAGE/STABILITY CORRECTION PROGRAM .....	\$49,100,000	The President
Corps of Engineers .....	Construction, General .....	Isabella Dam, CA .....	.....	The President
Corps of Engineers .....	Construction, General .....	Martis Creek Dam, CA & NV .....	.....	The President
Corps of Engineers .....	Construction, General .....	Cherry Creek Dam, CO .....	.....	The President
Corps of Engineers .....	Construction, General .....	Dworshak Dam, ID .....	.....	The President
Corps of Engineers .....	Construction, General .....	John Day Lock and Dam, OR & WA .....	.....	The President
Corps of Engineers .....	Construction, General .....	Seepage/Stability Correction Studies .....	.....	
Corps of Engineers .....	Construction, General .....	Blakely Mountain Dam, AR .....	.....	The President
Corps of Engineers .....	Construction, General .....	Hidden Dam, CA .....	.....	The President
Corps of Engineers .....	Construction, General .....	San Antonio Dam, CA .....	.....	The President
Corps of Engineers .....	Construction, General .....	Terminus Dam, CA .....	.....	The President
Corps of Engineers .....	Construction, General .....	Whittier Narrows Dam, CA .....	.....	The President
Corps of Engineers .....	Construction, General .....	Trinidad Dam, CO .....	.....	The President
Corps of Engineers .....	Construction, General .....	Hop Brook Dam, CT .....	.....	The President
Corps of Engineers .....	Construction, General .....	Mansfield Hollow Dam, CT .....	.....	The President
Corps of Engineers .....	Construction, General .....	Herbert Hoover Dike (Reach 2&3), FL .....	.....	The President
Corps of Engineers .....	Construction, General .....	Dworshak Dam, ID .....	.....	The President
Corps of Engineers .....	Construction, General .....	La Grange L&D, IL .....	.....	The President
Corps of Engineers .....	Construction, General .....	Lake Shelbyville Dam, IL .....	.....	The President
Corps of Engineers .....	Construction, General .....	Mississippi River, Lock and Dam 24, IL&MO .....	.....	The President
Corps of Engineers .....	Construction, General .....	Mississippi River, Lock and Dam 25, IL&MO .....	.....	The President
Corps of Engineers .....	Construction, General .....	Thomas J. O'Brien Controlling Works L&D, IL .....	.....	The President
Corps of Engineers .....	Construction, General .....	Brookville Dam, IN .....	.....	The President
Corps of Engineers .....	Construction, General .....	J. Edward Roush Dam, IN .....	.....	The President
Corps of Engineers .....	Construction, General .....	Patoka Lake Dam, IN .....	.....	The President
Corps of Engineers .....	Construction, General .....	Salamonie Lake Dam, IN .....	.....	The President
Corps of Engineers .....	Construction, General .....	Hartford Levee at John Redmond, KS .....	.....	The President
Corps of Engineers .....	Construction, General .....	Green River Lake Dam, KY .....	.....	The President

Corps of Engineers .....	Construction, General .....	Markland Locks and Dam, KY & OH .....	The President
Corps of Engineers .....	Construction, General .....	Nolin Lake Dam, KY .....	The President
Corps of Engineers .....	Construction, General .....	Rough River Lake, Dam, KY .....	The President
Corps of Engineers .....	Construction, General .....	Salamonie Lake Dam, KY .....	The President
Corps of Engineers .....	Construction, General .....	Russell B. Long L&D, LA .....	The President
Corps of Engineers .....	Construction, General .....	Westville Lake Dam, MA .....	The President
Corps of Engineers .....	Construction, General .....	Mississippi River Lock and Dam 1, MN .....	The President
Corps of Engineers .....	Construction, General .....	Mississippi River Lock and Dam 2, MN .....	The President
Corps of Engineers .....	Construction, General .....	Mississippi River Lock and Dam 3, MN .....	The President
Corps of Engineers .....	Construction, General .....	Orwell Reservoir Dam, MN .....	The President
Corps of Engineers .....	Construction, General .....	Arkabutla, MS .....	The President
Corps of Engineers .....	Construction, General .....	Cape Fear River Lock and Dam 1, NC .....	The President
Corps of Engineers .....	Construction, General .....	Beach City Dam, OH .....	The President
Corps of Engineers .....	Construction, General .....	Bolivar Dam, OH .....	The President
Corps of Engineers .....	Construction, General .....	Delaware Dam, OH .....	The President
Corps of Engineers .....	Construction, General .....	Magnolia Levee (Bolivar Dam), OH .....	The President
Corps of Engineers .....	Construction, General .....	Mohawk Dam, OH .....	The President
Corps of Engineers .....	Construction, General .....	Cumberland Dike—Texoma, OK .....	The President
Corps of Engineers .....	Construction, General .....	Keystone Lake Dam, OK .....	The President
Corps of Engineers .....	Construction, General .....	Robert S. Kerr Lock and Dam, OK .....	The President
Corps of Engineers .....	Construction, General .....	Bonneville Lock and Dam, OR & WA .....	The President
Corps of Engineers .....	Construction, General .....	Foster Dam, OR .....	The President
Corps of Engineers .....	Construction, General .....	Willamette Falls Lock, OR .....	The President
Corps of Engineers .....	Construction, General .....	Charlerois (MonoR), PA .....	The President
Corps of Engineers .....	Construction, General .....	Curwensville Dam, PA .....	The President
Corps of Engineers .....	Construction, General .....	East Branch Dam, Clarion River, PA .....	The President
Corps of Engineers .....	Construction, General .....	Hammond Dam, PA .....	The President
Corps of Engineers .....	Construction, General .....	Montgomery Locks and Dam, PA .....	The President
Corps of Engineers .....	Construction, General .....	J. Percy Priest, TN .....	The President
Corps of Engineers .....	Construction, General .....	Addicks Dam, Buffalo Bayou, TX .....	The President
Corps of Engineers .....	Construction, General .....	Barker Dam (Buffalo Bayou.), TX .....	The President
Corps of Engineers .....	Construction, General .....	Lewisville Dam, TX .....	The President
Corps of Engineers .....	Construction, General .....	Proctor Dam, TX .....	The President
Corps of Engineers .....	Construction, General .....	Stillhouse-Hollow Dam, TX .....	The President
Corps of Engineers .....	Construction, General .....	Town Bluff Dam, TX .....	The President
Corps of Engineers .....	Construction, General .....	Whitney Levee, TX .....	The President
Corps of Engineers .....	Construction, General .....	Ball Mountain Dam, VT .....	The President
Corps of Engineers .....	Construction, General .....	Howard Hansen Dam, WA .....	The President
Corps of Engineers .....	Construction, General .....	Mill Creek and Mill Creek Diversion Dam, WA .....	The President
Corps of Engineers .....	Construction, General .....	New Cumberland L&D, WV .....	The President

**PRESIDENTIALLY DIRECTED SPENDING ITEMS—Continued**

Agency	Account	Project title	Funding	Member
Corps of Engineers	Construction, General	Cedars Lock and Dam, WI		The President
Corps of Engineers	Construction, General	Depere Gen Laws, WI		The President
Corps of Engineers	Construction, General	Little Chute, WI		The President
Corps of Engineers	Construction, General	Rapide Croche Lock and Dam, WI		The President
Corps of Engineers	Construction, General	DREDGED MATERIAL DISPOSAL FACILITIES PROGRAM (DMDF)	\$5,199,000	The President
Corps of Engineers	Construction, General	Jacksonville Harbor, FL	(\$1,000,000)	The President
Corps of Engineers	Construction, General	Savannah Harbor, GA	(\$900,000)	The President
Corps of Engineers	Construction, General	Calumet Harbor and River, IL & IN	(\$1,501,000)	The President
Corps of Engineers	Construction, General	Charleston Harbor, SC	(\$1,798,000)	The President
Corps of Engineers	Construction, General	EMPLOYEES COMPENSATION FUND	\$21,000,000	The President
Corps of Engineers	Construction, General	ESTUARY RESTORATION PROGRAM (PUBLIC LAW 106-457)	\$1,000,000	The President
Corps of Engineers	Construction, General	INLAND WATERWAYS USER BOARD (BOARD EXPENSES)	\$60,000	The President
Corps of Engineers	Construction, General	INLAND WATERWAYS USER BOARD (COE EXP)	\$275,000	The President
Corps of Engineers	General Investigations	ALA WAI CANAL, OAHU, HI	\$408,000	The President
Corps of Engineers	General Investigations	AUGUSTA, GA	\$278,000	The President
Corps of Engineers	General Investigations	BAYOU SORREL LOCK, LA	\$1,239,000	The President
Corps of Engineers	General Investigations	BOSTON HARBOR (45-FOOT CHANNEL), MA	\$500,000	The President
Corps of Engineers	General Investigations	BRAZOS ISLAND HARBOR, BROWNSVILLE CHANNEL, TX	\$526,000	The President
Corps of Engineers	General Investigations	BUFFALO RIVER ENVIRONMENTAL DREDGING, NY	\$100,000	The President
Corps of Engineers	General Investigations	CALCASIEU LOCK, LA	\$1,000,000	The President
Corps of Engineers	General Investigations	CALIFORNIA COASTAL SEDIMENT MASTER PLAN, CA	\$900,000	The President
Corps of Engineers	General Investigations	COYOTE & BERRYESSA CREEKS, CA	\$950,000	The President
Corps of Engineers	General Investigations	CURRITUCK SOUND, NC	\$150,000	The President
Corps of Engineers	General Investigations	DELAWARE RIVER COMPREHENSIVE, NJ	\$290,000	The President
Corps of Engineers	General Investigations	DES PLAINES RIVER, IL (PHASE II)	\$500,000	The President
Corps of Engineers	General Investigations	EASTERN SHORE, MID-CHESAPEAKE BAY ISLAND, MD	\$483,000	The President
Corps of Engineers	General Investigations	EDISTO ISLAND, SC	\$167,000	The President
Corps of Engineers	General Investigations	FREEPORT HARBOR, TX	\$675,000	The President
Corps of Engineers	General Investigations	GIWW, HIGH ISLAND TO BRAZOS RIVER REALIGNMENTS, TX	\$200,000	The President
Corps of Engineers	General Investigations	GREAT LAKES NAV SYST STUDY, MI, IL, IN, MN, NY, OH, PA & WI	\$400,000	The President
Corps of Engineers	General Investigations	GREEN RIVER WATERSHED, KY		The President
Corps of Engineers	General Investigations	GUADALUPE AND SAN ANTONIO RIVER BASINS, TX	\$423,000	The President
Corps of Engineers	General Investigations	HAGATNA RIVER FLOOD CONTROL	\$200,000	The President
Corps of Engineers	General Investigations	HAMILTON CITY, CA	\$400,000	The President
Corps of Engineers	General Investigations	HASHAMOMUCK COVE, SOUTHOLD, NY	\$200,000	The President
Corps of Engineers	General Investigations	HUDSON—RARITAN ESTUARY, HACKENSACK MEADOWLANDS, NJ	\$200,000	The President

Corps of Engineers .....	General Investigations .....	HUDSON—RARITAN ESTUARY, LOWER PASSAIC RIVER, NJ .....	\$200,000	The President
Corps of Engineers .....	General Investigations .....	ILLINOIS RIVER BASIN RESTORATION, IL .....	\$400,000	The President
Corps of Engineers .....	General Investigations .....	INDIAN RIVER LAGOON NORTH, FL .....	\$150,000	The President
Corps of Engineers .....	General Investigations .....	INDIANA HARBOR, IN .....	\$300,000	The President
Corps of Engineers .....	General Investigations .....	INTERBASIN CONTROL OF GREAT LAKES, MISSISSIPPI RIVER AQ NUISANCE, IL, IN, OH, WI ...	\$300,000	The President
Corps of Engineers .....	General Investigations .....	JAMAICA BAY, MARINE PARK AND PLUMB BEACH NY .....	\$200,000	The President
Corps of Engineers .....	General Investigations .....	JOHN H KERR DAM AND RESERVOIR, VA & NC (Section 216) .....	\$300,000	The President
Corps of Engineers .....	General Investigations .....	KANSAS CITYS, MO & KS .....	\$224,000	The President
Corps of Engineers .....	General Investigations .....	LOUISIANA COASTAL AREA ECOSYSTEM RESTORATION, LA .....	\$23,000,000	The President
Corps of Engineers .....	General Investigations .....	LOUISIANA COASTAL PROTECTION & RESTORATION (LACPR), LA .....	\$3,000,000	The President
Corps of Engineers .....	General Investigations .....	LOWER COLORADO RIVER BASIN, TX .....	\$425,000	The President
Corps of Engineers .....	General Investigations .....	LOWER COLUMBIA RIVER ECOSYSTEM RESTORATION, WA & OR .....	\$300,000	The President
Corps of Engineers .....	General Investigations .....	LYNNHAVEN RIVER BASIN, VA .....	\$112,000	The President
Corps of Engineers .....	General Investigations .....	MATANUSKA RIVER WATERSHED, AK .....	\$100,000	The President
Corps of Engineers .....	General Investigations .....	MERRIMACK RIVER WATERSHED STUDY, NH & MA .....	\$200,000	The President
Corps of Engineers .....	General Investigations .....	MILL CREEK WATERSHED, DAVIDSON COUNTY, TN .....	\$50,000	The President
Corps of Engineers .....	General Investigations .....	MINNESOTA RIVER WATERSHED STUDY, MN & SD (MN RIVER AUTHORITY) .....	\$350,000	The President
Corps of Engineers .....	General Investigations .....	MISSOURI RIVER DEGRADATION, MO & KS .....	\$600,000	The President
Corps of Engineers .....	General Investigations .....	NEUSE RIVER BASIN, NC .....	\$200,000	The President
Corps of Engineers .....	General Investigations .....	NUECES RIVER AND TRIBUTARIES, TX .....	\$250,000	The President
Corps of Engineers .....	General Investigations .....	OCMULGEE RIVER BASIN WATERSHED MANAGEMENT, GA .....		The President
Corps of Engineers .....	General Investigations .....	PILGRIM LAKE, TRURO & PROVINCETOWN, MA .....	\$100,000	The President
Corps of Engineers .....	General Investigations .....	PIMA COUNTY, AZ .....	\$275,000	The President
Corps of Engineers .....	General Investigations .....	PORT EVERGLADES HARBOR, FL .....	\$510,000	The President
Corps of Engineers .....	General Investigations .....	PUGET SOUND NEARSHORE MARINE HABITAT RESTORATION, WA .....	\$400,000	The President
Corps of Engineers .....	General Investigations .....	PUYALLUP RIVER, WA .....	\$250,000	The President
Corps of Engineers .....	General Investigations .....	RED RIVER OF THE NORTH BASIN, MN, ND, SD AND MANITOBA, CANADA .....	\$3,050,000	The President
Corps of Engineers .....	General Investigations .....	RIO GRANDE BASIN, TX .....	\$304,000	The President
Corps of Engineers .....	General Investigations .....	SABINE PASS TO GALVESTON BAY, TX .....	\$200,000	The President
Corps of Engineers .....	General Investigations .....	SAC-SAN JOAQUIN DELTA ISLANDS AND LEVEES, CA .....	\$468,000	The President
Corps of Engineers .....	General Investigations .....	SAVANNAH HARBOR EXPANSION, GA .....		The President
Corps of Engineers .....	General Investigations .....	SHREWSBURY RIVER AND TRIBUTARIES, NJ .....	\$511,000	The President
Corps of Engineers .....	General Investigations .....	SOLANA-ENCINITAS SHORELINE, CA .....	\$278,000	The President
Corps of Engineers .....	General Investigations .....	ST LOUIS, MO (WATERSHED) .....		The President
Corps of Engineers .....	General Investigations .....	SUTTER COUNTY, CA .....	\$339,000	The President
Corps of Engineers .....	General Investigations .....	TOPEKA, KS .....	\$250,000	The President
Corps of Engineers .....	General Investigations .....	TYBEE ISLAND, GA .....	\$206,000	The President
Corps of Engineers .....	General Investigations .....	UPPER PENITENCIA CREEK, CA .....	\$386,000	The President
Corps of Engineers .....	General Investigations .....	VA SHLY-AY AKIMEL SALT RIVER RESTORATION, AZ .....	\$658,000	The President
Corps of Engineers .....	General Investigations .....	WALLA WALLA RIVER WATERSHED, OR & WA .....	\$203,000	The President

**PRESIDENTIALLY DIRECTED SPENDING ITEMS—Continued**

Agency	Account	Project title	Funding	Member
Corps of Engineers	General Investigations	WILD RICE RIVER, RED RIVER OF THE NORTH BASIN, MN	\$271,000	The President
Corps of Engineers	General Investigations	WILLAMETTE RIVER FLOODPLAIN RESTORATION, OR	\$240,000	The President
Corps of Engineers	General Investigations	YAKUTAT HARBOR, AK	\$450,000	The President
Corps of Engineers	General Investigations	YELLOWSTONE RIVER CORRIDOR, MT	\$200,000	The President
Corps of Engineers	General Investigations	GENERAL INVESTIGATION ITEMS NOT LISTED UNDER STATES		
Corps of Engineers	General Investigations	COORDINATION STUDIES WITH OTHER AGENCIES		
Corps of Engineers	General Investigations	ACCESS TO WATER DATA (TECH ASSIST—SEC 2017 WRDA 2007)	\$750,000	The President
Corps of Engineers	General Investigations	COMMITTEE ON MARINE TRANSPORTATION SYSTEMS	\$100,000	The President
Corps of Engineers	General Investigations	OTHER COORDINATION PROGRAMS	\$4,730,000	The President
Corps of Engineers	General Investigations	PLANNING ASSISTANCE TO STATES	\$8,051,000	The President
Corps of Engineers	General Investigations	Arizona Department of Water Resources, AZ	\$150,000	The President
Corps of Engineers	General Investigations	City of Los Angeles, CA	\$150,000	The President
Corps of Engineers	General Investigations	City of Palmdale, CA	\$75,000	The President
Corps of Engineers	General Investigations	Los Angeles County, CA	\$150,000	The President
Corps of Engineers	General Investigations	San Bernadino County, CA	\$150,000	The President
Corps of Engineers	General Investigations	San Manuel Band of Indians, CA	\$66,000	The President
Corps of Engineers	General Investigations	Soboba Band of Indians, CA	\$75,000	The President
Corps of Engineers	General Investigations	West Canal/Willow Brook Flood Management Study, New Britain, CT	\$20,000	The President
Corps of Engineers	General Investigations	South Bethany Tidal Pump System Study, DE	\$150,000	The President
Corps of Engineers	General Investigations	Effingham County Storm Water Management Plan, GA	\$60,000	The President
Corps of Engineers	General Investigations	Northwest GA Watershead, GA	\$100,000	The President
Corps of Engineers	General Investigations	Nishnabotna Watershed, IA	\$341,000	The President
Corps of Engineers	General Investigations	Willow Creek, IA	\$45,000	The President
Corps of Engineers	General Investigations	Big Wood River—Belvue Idaho, ID	\$25,000	The President
Corps of Engineers	General Investigations	Weiser R. Floodplain Analysis, ID	\$50,000	The President
Corps of Engineers	General Investigations	KS River Water Resources, KS	\$50,000	The President
Corps of Engineers	General Investigations	PAS Tribal Support, KS	\$50,000	The President
Corps of Engineers	General Investigations	Bardstown, KY	\$88,000	The President
Corps of Engineers	General Investigations	Louisville Parks, KY	\$100,000	The President
Corps of Engineers	General Investigations	Chitimacha Watershed Planning, LA	\$150,000	The President
Corps of Engineers	General Investigations	New Orleans River Park, LA	\$100,000	The President
Corps of Engineers	General Investigations	Port of Lake Charles Master Plan, LA	\$125,000	The President
Corps of Engineers	General Investigations	River Parishes Pedestrian Plan, LA	\$125,000	The President
Corps of Engineers	General Investigations	St. Johns Parish Monumentation, LA	\$125,000	The President
Corps of Engineers	General Investigations	Tunica Recreation Trail, Tunica-Biloxi Tribe, LA	\$125,000	The President
Corps of Engineers	General Investigations	Penn's Hill Drainage Study, Quincy, MA	\$10,000	The President

Corps of Engineers	General Investigations	Town Line Brook Drainage Assessment, Malden, MA	\$10,000	The President
Corps of Engineers	General Investigations	Montgomery County, MD	\$20,000	The President
Corps of Engineers	General Investigations	Macomb County Drain Mapping & Database, MI	\$200,000	The President
Corps of Engineers	General Investigations	Stream Characteristics Study for Saganing River, MI	\$80,000	The President
Corps of Engineers	General Investigations	Cape Girardeau Groundwater Study, MO	\$75,000	The President
Corps of Engineers	General Investigations	City of Marquand Flood Study, MO	\$50,000	The President
Corps of Engineers	General Investigations	PAS MO MDNR Northwest Missouri, MO	\$50,000	The President
Corps of Engineers	General Investigations	Peruque Creek Water Quality, MO	\$30,000	The President
Corps of Engineers	General Investigations	St Charles Riverfront Micro-Model, MO	\$90,000	The President
Corps of Engineers	General Investigations	Henry R Dam, Burke, Co., NC	\$48,000	The President
Corps of Engineers	General Investigations	Goochs Mill, Grnadvile, Co., NC	\$25,000	The President
Corps of Engineers	General Investigations	Fontenelle/Bellevue, NE	\$40,000	The President
Corps of Engineers	General Investigations	Spicket River Watershed Study, NH	\$55,000	The President
Corps of Engineers	General Investigations	Grants Drainage Management Plan, NM	\$56,000	The President
Corps of Engineers	General Investigations	Tarrytown, NY	\$10,000	The President
Corps of Engineers	General Investigations	Town of Clarence, NY	\$80,000	The President
Corps of Engineers	General Investigations	Wappingers Falls, NY	\$10,000	The President
Corps of Engineers	General Investigations	Harpersfield Dam, Grand River, OH	\$88,000	The President
Corps of Engineers	General Investigations	State of Ohio GIS, OH	\$75,000	The President
Corps of Engineers	General Investigations	PAS Boone Nute Slough, OR	\$27,000	The President
Corps of Engineers	General Investigations	PAS City of Medford Floodplain, OR	\$60,000	The President
Corps of Engineers	General Investigations	PAS Nehalem River ODOT Flood Mapping, OR	\$200,000	The President
Corps of Engineers	General Investigations	PAS Portland Balanced Cut and Fill Study, OR	\$35,000	The President
Corps of Engineers	General Investigations	PAS Tootle River Radio Tracking, OR	\$30,000	The President
Corps of Engineers	General Investigations	Allegheny Co Aquatic Assessment Study, PA	\$50,000	The President
Corps of Engineers	General Investigations	Northern Allegheny Co Stormwater Managt Study, PA	\$25,000	The President
Corps of Engineers	General Investigations	Pennsylvania Flood Inundation Mapping, PA	\$100,000	The President
Corps of Engineers	General Investigations	SW PA Spill Response Study, PA	\$50,000	The President
Corps of Engineers	General Investigations	USS Yorktown, SC	\$75,000	The President
Corps of Engineers	General Investigations	Kingsport Riverfront, TN	\$75,000	The President
Corps of Engineers	General Investigations	TN Dept of Env and Conserv Pilot Study—Wtr Res Tech ADVISORY Committee, TN	\$200,000	The President
Corps of Engineers	General Investigations	Charlottesville Water Quality Management, VA	\$40,000	The President
Corps of Engineers	General Investigations	James City Surry Non-Structural, VA	\$35,000	The President
Corps of Engineers	General Investigations	Virginia Department of Transportation, VA	\$114,000	The President
Corps of Engineers	General Investigations	Williamsburg Stormwater Management, VA	\$25,000	The President
Corps of Engineers	General Investigations	South Burlington, VT	\$50,000	The President
Corps of Engineers	General Investigations	Clover Island—Port of Kenewick, WA	\$25,000	The President
Corps of Engineers	General Investigations	Elwha River, WA	\$50,000	The President
Corps of Engineers	General Investigations	Half Moon Lake Alum Dosing Study, WI	\$30,000	The President

**PRESIDENTIALLY DIRECTED SPENDING ITEMS—Continued**

Agency	Account	Project title	Funding	Member
Corps of Engineers	General Investigations	Internal Phosphorus Loading Assessment Study, Big Eau Pleine Flowage, WI	\$31,000	The President
Corps of Engineers	General Investigations	Oneida Nation Floodplain Delineation, WI	\$250,000	The President
Corps of Engineers	General Investigations	City of Ravenwood, WV	\$25,000	The President
Corps of Engineers	General Investigations	Putnam County Drainage, WV	\$50,000	The President
Corps of Engineers	General Investigations	COLLECTION AND STUDY OF BASIC DATA		
Corps of Engineers	General Investigations	AUTOMATED INFORMATION SYSTEMS SUPPORT TRI-CADD	\$350,000	The President
Corps of Engineers	General Investigations	COASTAL FIELD DATA COLLECTION	\$6,000,000	The President
Corps of Engineers	General Investigations	ENVIRONMENTAL DATA STUDIES	\$75,000	The President
Corps of Engineers	General Investigations	FLOOD DAMAGE DATA	\$220,000	The President
Corps of Engineers	General Investigations	FLOOD PLAIN MANAGEMENT SERVICES	\$13,200,000	The President
Corps of Engineers	General Investigations	Mobile District Hurricane Evacuation Studies, AL	\$50,000	The President
Corps of Engineers	General Investigations	Special Study—Crowdabout Creek, AL	\$81,000	The President
Corps of Engineers	General Investigations	SS—SFHE Montgomery Al, Little Sandy Creek, AL	\$40,000	The President
Corps of Engineers	General Investigations	SS—Beaver/Clear Creeks, Camp Verde, AZ	\$100,000	The President
Corps of Engineers	General Investigations	SS—Cochise County, AZ	\$100,000	The President
Corps of Engineers	General Investigations	SS—Gila River/Duncan, AZ	\$100,000	The President
Corps of Engineers	General Investigations	SS—Hopi Tribe Floodplain Mapping, AZ	\$100,000	The President
Corps of Engineers	General Investigations	SS—Tohono O'odham Gu Vo Wash, AZ	\$95,000	The President
Corps of Engineers	General Investigations	SS—Tohono O'odham Nationwide Floodplain Mapping, AZ	\$250,000	The President
Corps of Engineers	General Investigations	Humboldt County, CA Tsunami PAS, CA	\$500,000	The President
Corps of Engineers	General Investigations	Raymond Basin Conjunctive Use Drought Study, CA	\$125,000	The President
Corps of Engineers	General Investigations	San Mateo County, CA Levee Survey, CA	\$30,000	The President
Corps of Engineers	General Investigations	SS—Anaverte Creek Floodplain Delineation, CA	\$100,000	The President
Corps of Engineers	General Investigations	SS—Soboba Band of Indians Flood Mapping, CA	\$100,000	The President
Corps of Engineers	General Investigations	Carbon County, CO	\$50,000	The President
Corps of Engineers	General Investigations	Durango, LaPlata County, CO	\$60,000	The President
Corps of Engineers	General Investigations	Green River City, CO	\$80,000	The President
Corps of Engineers	General Investigations	La Plata County, CO	\$50,000	The President
Corps of Engineers	General Investigations	Mesa County, CO	\$50,000	The President
Corps of Engineers	General Investigations	Flood/Hurricane Evacuation, DC	\$100,000	The President
Corps of Engineers	General Investigations	Savannah District Hurricane Evac Studies, GA	\$40,000	The President
Corps of Engineers	General Investigations	SS—GA Clarksville Stream Survey, GA	\$20,000	The President
Corps of Engineers	General Investigations	Anahola Flood Hazard Study, Kauai, HI	\$150,000	The President
Corps of Engineers	General Investigations	Kaluauui Stream Flood Hazard Determination, Oahu, HI State Parks, DLNR	\$150,000	The President
Corps of Engineers	General Investigations	Nuuanu Reservoir Flood Study, HI	\$150,000	The President
Corps of Engineers	General Investigations	Waimea River Zone A Flood Determination, Kauai, HI	\$185,000	The President

Corps of Engineers	General Investigations	Waiohuli Gulch Flood Hazard Study, Kula, Maui, HI	\$200,000	The President
Corps of Engineers	General Investigations	SS—Evaluation of Flooding Scenarios, IA	\$120,000	The President
Corps of Engineers	General Investigations	SS—Regulated Frequency Curves	\$150,000	The President
Corps of Engineers	General Investigations	SS—Boulder Creek Donnelly, ID	\$35,000	The President
Corps of Engineers	General Investigations	SS—Warm Springs Creek vic of Challis, ID	\$38,000	The President
Corps of Engineers	General Investigations	SS—Warm Springs Creek vic of Ketchum, ID	\$45,000	The President
Corps of Engineers	General Investigations	SS—IL Levees Evaluation Support, IL	\$250,000	The President
Corps of Engineers	General Investigations	Will County Survey, IL	\$400,000	The President
Corps of Engineers	General Investigations	Nodaway County Bridge Study, KS	\$50,000	The President
Corps of Engineers	General Investigations	Hurricane Evacuation Study, SE Louisiana Update Support Data	\$100,000	The President
Corps of Engineers	General Investigations	SS—City of Gretna GIS, LA	\$200,000	The President
Corps of Engineers	General Investigations	SS—East Baton Rouge GIS, LA	\$450,000	The President
Corps of Engineers	General Investigations	SS—Livingston Parish GIS, LA	\$650,000	The President
Corps of Engineers	General Investigations	Clay Pit Brook Flooding Study, MA	\$25,000	The President
Corps of Engineers	General Investigations	Hoosic River Flood Mitigation Study, Cheshire, MA	\$10,000	The President
Corps of Engineers	General Investigations	Saw Mill Brook Flood Study, Newton, MA	\$10,000	The President
Corps of Engineers	General Investigations	Spear Brook Flood Control Study, Wilbraham, MA	\$10,000	The President
Corps of Engineers	General Investigations	Hurricane Evacuation Studies, MD	\$50,000	The President
Corps of Engineers	General Investigations	AuTrain River Scour Study, MI, MI	\$71,000	The President
Corps of Engineers	General Investigations	Floodplain Management Training, MO	\$30,000	The President
Corps of Engineers	General Investigations	SS—Lincoln County, MO	\$150,000	The President
Corps of Engineers	General Investigations	Jordan, MT	\$80,000	The President
Corps of Engineers	General Investigations	Nashua Flood Risk Assessment, MT	\$55,000	The President
Corps of Engineers	General Investigations	North Carolina HES Restudy, NC	\$50,000	The President
Corps of Engineers	General Investigations	Beaver & Black Brooks Flooding Study, Londerry, NH	\$25,000	The President
Corps of Engineers	General Investigations	SS—Manalapan Brook, NJ	\$110,000	The President
Corps of Engineers	General Investigations	Elbow Creek, NY	\$60,000	The President
Corps of Engineers	General Investigations	Forecast Studies, NY	\$50,000	The President
Corps of Engineers	General Investigations	Hurricane Evacuation Studies, NY	\$50,000	The President
Corps of Engineers	General Investigations	Onondaga Creek, Syracuse, NY	\$100,000	The President
Corps of Engineers	General Investigations	Special Study—Finger Lakes, NY	\$100,000	The President
Corps of Engineers	General Investigations	New Jersey—Port Authority Study Update, NY, NJ	\$180,000	The President
Corps of Engineers	General Investigations	Special Study—Crawford County, OH	\$100,000	The President
Corps of Engineers	General Investigations	SS City of John Day, OR	\$160,000	The President
Corps of Engineers	General Investigations	SS Crooked River FIS (City of Prineville), OR	\$140,000	The President
Corps of Engineers	General Investigations	SS Juniper Canyon FIS (City of Prineville), OR	\$137,000	The President
Corps of Engineers	General Investigations	SS Wahkiakum Co FIS #1 (Gray's River), OR	\$155,000	The President
Corps of Engineers	General Investigations	SS Wahkiakum Co FIS #2 (Elochoman River), OR	\$130,000	The President
Corps of Engineers	General Investigations	SS Wahkiakum Co FIS #3 (Wilson Creek), OR	\$128,000	The President
Corps of Engineers	General Investigations	SS Wahkiakum Co FIS #4 (Skamokawa Creek), OR	\$128,000	The President



PRESIDENTIALLY DIRECTED SPENDING ITEMS—Continued

Agency	Account	Project title	Funding	Member
Corps of Engineers	General Investigations	Philadelphia Hurricane Evacuation Study, PA	\$10,000	The President
Corps of Engineers	General Investigations	Southeastern, PA	\$250,000	The President
Corps of Engineers	General Investigations	Puerto Rico HES Behavior Study, PR	\$112,000	The President
Corps of Engineers	General Investigations	South Carolina HES Restudy, SC	\$50,000	The President
Corps of Engineers	General Investigations	SS—City of Gallatin, TN	\$85,000	The President
Corps of Engineers	General Investigations	Unincorporated Weber Co., UT	\$50,000	The President
Corps of Engineers	General Investigations	City of Galax, VA	\$100,000	The President
Corps of Engineers	General Investigations	SS—Town of Abingdon, VA	\$56,000	The President
Corps of Engineers	General Investigations	Dam Break Studies, VT	\$31,000	The President
Corps of Engineers	General Investigations	East Long Pond Dam, VT	\$50,000	The President
Corps of Engineers	General Investigations	Lake Hardwick Dam, VT	\$50,000	The President
Corps of Engineers	General Investigations	Mackville Pond Dam, VT	\$50,000	The President
Corps of Engineers	General Investigations	Nichols Pond Dam, VT	\$50,000	The President
Corps of Engineers	General Investigations	Rugg Brooks, St. Albans City, VT	\$75,000	The President
Corps of Engineers	General Investigations	SS—Stevens Brooks, Town of St. Albans, VT	\$75,000	The President
Corps of Engineers	General Investigations	SS—Vermont, VT	\$25,000	The President
Corps of Engineers	General Investigations	Warren Lake Dam, VT	\$50,000	The President
Corps of Engineers	General Investigations	SS Lind Coulee, vicinity of Lind, WA	\$35,000	The President
Corps of Engineers	General Investigations	SS McCoy Creek, vicinity of Oakesdale, WA	\$67,000	The President
Corps of Engineers	General Investigations	Bear River Study—Uinta Co., WY	\$140,000	The President
Corps of Engineers	General Investigations	HYDROLOGIC STUDIES	\$250,000	The President
Corps of Engineers	General Investigations	INTERNATIONAL WATER STUDIES	\$200,000	The President
Corps of Engineers	General Investigations	PRECIPITATION STUDIES (NATIONAL WEATHER SERVICE)	\$225,000	The President
Corps of Engineers	General Investigations	REMOTE SENSING/GEOGRAPHICAL INFORMATION SYSTEM SUPPORT	\$150,000	The President
Corps of Engineers	General Investigations	SCIENTIFIC AND TECHNICAL INFORMATION CENTERS	\$50,000	The President
Corps of Engineers	General Investigations	STREAM GAGING (U.S. GEOLOGICAL SURVEY)	\$600,000	The President
Corps of Engineers	General Investigations	TRANSPORTATION SYSTEMS	\$350,000	The President
Corps of Engineers	General Investigations	RESEARCH AND DEVELOPMENT	\$25,392,000	The President
Corps of Engineers	General Investigations	OTHER—MISC		
Corps of Engineers	General Investigations	FLOOD RISK MANAGEMENT	\$2,000,000	The President
Corps of Engineers	General Investigations	INDEPENDENT PEER REVIEW	\$1,000,000	The President
Corps of Engineers	General Investigations	NATIONAL SHORELINE	\$375,000	The President
Corps of Engineers	General Investigations	PLANNING SUPPORT PROGRAM	\$2,100,000	The President
Corps of Engineers	General Investigations	TRIBAL PARTNERSHIP PROGRAM	\$1,000,000	The President
Corps of Engineers	General Investigations	WATER RESOURCES PRIORITIES STUDY		The President
Corps of Engineers	MR&T—CG	Channel Improvement, AR, IL, KY, LA, MS, NO, TH	\$47,721,000	The President

Corps of Engineers	MR&T—CG	MISSISSIPPI RIVER LEVEES, AR, IL, KY, LA, MS, MO & TN	\$45,439,000	The President
Corps of Engineers	MR&T—CG	ATCHAFALAYA BASIN, FLOODWAY SYSTEM, LA	\$3,000,000	The President
Corps of Engineers	MR&T—CG	ATCHAFALAYA BASIN, LA	\$15,000,000	The President
Corps of Engineers	MR&T—CG	MISSISSIPPI DELTA REGION, LA	\$2,250,000	The President
Corps of Engineers	MR&T—GI	ALEXANDRIA TO THE GULF, LA	\$1,000,000	The President
Corps of Engineers	MR&T—GI	DONALDSONVILLE TO THE GULF, LA	\$400,000	The President
Corps of Engineers	MR&T—GI	MEMPHIS METRO AREA, STORM WATER MGMT STUDY, TN & MS	\$100,000	The President
Corps of Engineers	MR&T—GI	COLLECTION AND STUDY OF BASIC DATA	\$1,665,000	The President
Corps of Engineers	MR&T—Maintenance	CHANNEL IMPROVEMENT, AR, IL, KY, LA, MS, MO & TN	\$67,350,000	The President
Corps of Engineers	MR&T—Maintenance	HELENA HARBOR, PHILLIPS COUNTY, AR		The President
Corps of Engineers	MR&T—Maintenance	INSPECTION OF COMPLETED WORKS, AR	\$425,000	The President
Corps of Engineers	MR&T—Maintenance	LOWER ARKANSAS RIVER, NORTH BANK, AR	\$223,000	The President
Corps of Engineers	MR&T—Maintenance	LOWER ARKANSAS RIVER, SOUTH BANK, AR	\$175,000	The President
Corps of Engineers	MR&T—Maintenance	MISSISSIPPI RIVER LEVEES, AR, IL, KY, LA, MS, MO & TN	\$11,708,000	The President
Corps of Engineers	MR&T—Maintenance	WHITE RIVER BACKWATER, AR	\$1,217,000	The President
Corps of Engineers	MR&T—Maintenance	INSPECTION OF COMPLETED WORKS, IL	\$191,000	The President
Corps of Engineers	MR&T—Maintenance	INSPECTION OF COMPLETED WORKS, KY	\$100,000	The President
Corps of Engineers	MR&T—Maintenance	ATCHAFALAYA BASIN, FLOODWAY SYSTEM, LA	\$2,532,000	The President
Corps of Engineers	MR&T—Maintenance	ATCHAFALAYA BASIN, LA	\$12,374,000	The President
Corps of Engineers	MR&T—Maintenance	BATON ROUGE HARBOR, DEVIL SWAMP, LA	\$43,000	The President
Corps of Engineers	MR&T—Maintenance	BAYOU COCODRIE AND TRIBUTARIES, LA	\$54,000	The President
Corps of Engineers	MR&T—Maintenance	BONNET CARRE, LA	\$3,500,000	The President
Corps of Engineers	MR&T—Maintenance	INSPECTION OF COMPLETED WORKS, LA	\$1,716,000	The President
Corps of Engineers	MR&T—Maintenance	MISSISSIPPI DELTA REGION, CAERNARVON, LA	\$1,800,000	The President
Corps of Engineers	MR&T—Maintenance	OLD RIVER, LA	\$10,200,000	The President
Corps of Engineers	MR&T—Maintenance	LOWER RED RIVER, SOUTH BANK LEVEES, LA	\$100,000	The President
Corps of Engineers	MR&T—Maintenance	TENSAS BASIN, BOEUF AND TENSAS RIVERS, AR & LA	\$2,485,000	The President
Corps of Engineers	MR&T—Maintenance	TENSAS BASIN, RED RIVER BACKWATER, LA	\$3,660,000	The President
Corps of Engineers	MR&T—Maintenance	GREENVILLE HARBOR, MS	\$500,000	The President
Corps of Engineers	MR&T—Maintenance	INSPECTION OF COMPLETED WORKS, MS	\$25,000	The President
Corps of Engineers	MR&T—Maintenance	VICKSBURG HARBOR, MS	\$537,000	The President
Corps of Engineers	MR&T—Maintenance	YAZOO BASIN, ARKABUTLA LAKE, MS	\$6,870,000	The President
Corps of Engineers	MR&T—Maintenance	YAZOO BASIN, BIG SUNFLOWER RIVER, MS	\$2,400,000	The President
Corps of Engineers	MR&T—Maintenance	YAZOO BASIN, ENID LAKE, MS	\$7,640,000	The President
Corps of Engineers	MR&T—Maintenance	YAZOO BASIN, GREENWOOD, MS	\$807,000	The President
Corps of Engineers	MR&T—Maintenance	YAZOO BASIN, GRENADA LAKE, MS	\$7,381,000	The President
Corps of Engineers	MR&T—Maintenance	YAZOO BASIN, MAIN STEM, MS	\$2,800,000	The President
Corps of Engineers	MR&T—Maintenance	YAZOO BASIN, SARDIS LAKE, MS	\$9,183,000	The President
Corps of Engineers	MR&T—Maintenance	YAZOO BASIN, TRIBUTARIES, MS	\$825,000	The President
Corps of Engineers	MR&T—Maintenance	YAZOO BASIN, WILL M WHITTINGTON AUX CHAN, MS	\$400,000	The President

PRESIDENTIALLY DIRECTED SPENDING ITEMS—Continued

Agency	Account	Project title	Funding	Member
Corps of Engineers	MR&T—Maintenance	YAZOO BASIN, YAZOO BACKWATER AREA, MS	\$544,000	The President
Corps of Engineers	MR&T—Maintenance	YAZOO BASIN, YAZOO CITY, MS	\$731,000	The President
Corps of Engineers	MR&T—Maintenance	INSPECTION OF COMPLETED WORKS, MO	\$150,000	The President
Corps of Engineers	MR&T—Maintenance	ST. FRANCIS BASIN, AR & MO	\$9,843,000	The President
Corps of Engineers	MR&T—Maintenance	WAPPAPELLO LAKE, MO	\$5,416,000	The President
Corps of Engineers	MR&T—Maintenance	INSPECTION OF COMPLETED WORKS, TN	\$45,000	The President
Corps of Engineers	MR&T—Maintenance	MEMPHIS HARBOR, MCKELLAR LAKE, TN	\$1,417,000	The President
Corps of Engineers	MR&T—Maintenance	MAPPING	\$1,112,000	The President
Corps of Engineers	Operation and Maintenance	Abiquiu Dam, NM	\$3,305,000	The President
Corps of Engineers	Operation and Maintenance	Alabama-Coosa Comprehensive Water Study, AL	\$253,000	The President
Corps of Engineers	Operation and Maintenance	Alabama River Lakes, AL	\$16,785,000	The President
Corps of Engineers	Operation and Maintenance	Alamo Lake, AZ	\$1,542,000	The President
Corps of Engineers	Operation and Maintenance	Albeni Falls Dam, ID	\$1,545,000	The President
Corps of Engineers	Operation and Maintenance	Allatoona Lake, GA	\$7,077,000	The President
Corps of Engineers	Operation and Maintenance	Allegheny River, PA	\$9,039,000	The President
Corps of Engineers	Operation and Maintenance	Almond Lake, NY	\$524,000	The President
Corps of Engineers	Operation and Maintenance	Alum Creek Lake, OH	\$1,545,000	The President
Corps of Engineers	Operation and Maintenance	Alvin R. Bush Dam, PA	\$659,000	The President
Corps of Engineers	Operation and Maintenance	Anchorage Harbor, AK	\$18,659,000	The President
Corps of Engineers	Operation and Maintenance	Apalachicola, Chattahoochee and Flint Rivers, GA, AL & FL	\$2,437,000	The President
Corps of Engineers	Operation and Maintenance	Applegate Lake, OR	\$1,302,000	The President
Corps of Engineers	Operation and Maintenance	Aquilla Lake, TX	\$1,564,000	The President
Corps of Engineers	Operation and Maintenance	Arcadia Lake, OK	\$521,000	The President
Corps of Engineers	Operation and Maintenance	Arkansas-Red River Basins Chloride Control—Area VIII, TX	\$1,558,000	The President
Corps of Engineers	Operation and Maintenance	Arkport Dam, NY	\$298,000	The President
Corps of Engineers	Operation and Maintenance	Ashtabula Harbor, OH	\$1,840,000	The President
Corps of Engineers	Operation and Maintenance	Assateague, MD	\$1,000,000	The President
Corps of Engineers	Operation and Maintenance	Atchafalaya River and Bayous Chene, Boeuf & Black, LA	\$11,640,000	The President
Corps of Engineers	Operation and Maintenance	Atlantic Intracoastal Waterway—ACC, VA	\$2,620,000	The President
Corps of Engineers	Operation and Maintenance	Atlantic Intracoastal Waterway—DSC, VA	\$1,311,000	The President
Corps of Engineers	Operation and Maintenance	Atlantic Intracoastal Waterway, GA	\$1,000,000	The President
Corps of Engineers	Operation and Maintenance	Atlantic Intracoastal Waterway, NC	\$4,300,000	The President
Corps of Engineers	Operation and Maintenance	Atlantic Intracoastal Waterway, SC	\$1,295,000	The President
Corps of Engineers	Operation and Maintenance	Aylesworth Creek Lake, PA	\$215,000	The President
Corps of Engineers	Operation and Maintenance	B. Everett Jordan Dam and Lake, NC	\$1,898,000	The President
Corps of Engineers	Operation and Maintenance	Ball Mountain, VT	\$858,000	The President

Corps of Engineers .....	Operation and Maintenance .....	Baltimore Harbor and Channel (50 Foot), MD .....	\$20,000,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Baltimore Harbor, MD (Drift Removal) .....	\$360,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Barataria Bay Waterway, LA .....	\$165,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Barbers Point Harbor, HI .....	\$201,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Bardwell Lake, TX .....	\$2,229,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Barkley Dam and Lake, Barkley, KY & TN .....	\$10,393,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Barnegat Inlet, NJ .....	\$225,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Barre Falls Dam, MA .....	\$753,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Barren River Lake, KY .....	\$2,514,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Bayou Bodcau Reservoir, LA .....	\$954,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Bayou LaFourche and LaFourche Jump Waterway, LA .....	\$1,211,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Bayou Pierre, LA .....	\$24,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Bayou Segnette Waterway, LA .....	\$49,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Bayou Teche and Vermillion River, LA .....	\$15,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Bayou Teche, LA .....	\$200,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Bayport Ship Channel, TX .....	\$4,968,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Bear Creek Lake, CO .....	\$395,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Beaver Lake, AR .....	\$8,864,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Beech Fork Lake, WV .....	\$1,405,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Belton Lake, TX .....	\$3,280,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Beltzville Lake, PA .....	\$1,201,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Benbrook Lake, TX .....	\$2,575,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Berlin Lake, OH .....	\$2,198,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Big Bend Dam, Lake Sharpe, SD .....	\$9,873,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Big Sandy Harbor, KY .....	\$1,710,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Bigstone Lake—Whetstone River, MN & SD .....	\$276,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Biloxi Harbor, MS .....	\$1,250,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Birch Hill Dam, MA .....	\$1,203,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Birch Lake, OK .....	\$902,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Black Butte Lake, CA .....	\$2,234,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Black Rock Channel and Tonawanda Harbor, NY .....	\$1,503,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Black Rock Lake, CT .....	\$1,436,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Black Warrior and Tombigbee Rivers, AL .....	\$24,180,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Blackwater Dam, NH .....	\$610,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Blakely Mt Dam, Lake Ouachita, AR .....	\$7,079,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Blue Marsh Lake, PA .....	\$2,696,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Blue Mountain Lake, AR .....	\$1,914,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Blue River Lake, OR .....	\$940,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Bluestone Lake, WV .....	\$1,661,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Bonneville Lock & Dam, OR & WA .....	\$13,911,000	The President

**PRESIDENTIALLY DIRECTED SPENDING ITEMS—Continued**

Agency	Account	Project title	Funding	Member
Corps of Engineers .....	Operation and Maintenance .....	Boston Harbor, MA .....	\$7,000,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Bowman Haley, ND .....	\$350,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Brazos Island Harbor, TX .....	\$3,388,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Broken Bow Lake, OK .....	\$3,202,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Brookville Lake, IN .....	\$862,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Brunswick Harbor, GA .....	\$7,156,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Buchanan Dam, HV Eastman Lake, CA .....	\$2,041,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Buckhorn Lake, KY .....	\$1,585,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Buffalo Bayou & Tributaries, TX .....	\$2,958,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Buffalo Harbor, NY .....	\$1,325,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Buffumville Lake, MA .....	\$836,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Buford Dam and Lake Sidney Lanier, GA .....	\$8,924,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Bull Shoals Lake, AR .....	\$14,484,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Burns Waterway Harbor, IN .....	\$165,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Burnsville Lake, WV .....	\$2,246,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Buttermilk Channel, NY .....	\$1,760,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Caddo Lake, LA .....	\$224,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Caesar Creek Lake, OH .....	\$1,500,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Cagles Mill Lake, IN .....	\$892,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Calcasieu River and Pass, LA .....	\$23,968,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Calumet Harbor and River, IL & IN .....	\$4,621,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Canaveral Harbor, FL .....	\$4,600,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Canton Lake, OK .....	\$2,217,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Canyon Lake, TX .....	\$4,005,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Cape Cod Canal, MA .....	\$13,263,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Cape Fear River Above Wilmington, NC .....	\$988,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Cape May Inlet to Lower Township, NJ .....	\$200,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Carlyle Lake, IL .....	\$5,171,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Carr Creek Lake, KY .....	\$1,737,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Carters Dam and Lake, GA .....	\$8,318,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Caruthersville Harbor, MO .....	\$800,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Cave Run Lake, KY .....	\$926,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Cecil M. Harden Lake, IN .....	\$1,027,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Cedar Bayou, TX .....	\$1,790,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Center Hill Lake, TN .....	\$6,143,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Central & Southern Florida, FL .....	\$23,876,000	The President

Corps of Engineers .....	Operation and Maintenance .....	Channel To Harlingen, TX .....	\$2,161,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Channel To Port Bolivar, TX .....	\$383,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Channels in Lake St Clair, MI .....	\$1,636,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Charles River Natural Valley Storage Area, MA .....	\$275,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Charleston Harbor, SC .....	\$12,492,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Charlevoix Harbor, MI .....	\$203,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Chatfield Lake, CO .....	\$1,442,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Cheatham Lock and Dam, TN .....	\$6,454,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Chena River Lakes, AK .....	\$2,816,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Cherry Creek Lake, CO .....	\$1,999,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Chetco River, OR .....	\$909,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Chicago Harbor, IL .....	\$3,889,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Chicago River, IL .....	\$493,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Chickamauga Lock, Tennessee River, TN .....	\$3,775,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Chief Joseph Dam, WA .....	\$790,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Chinoteague Inlet, VA .....	\$913,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Clarence Cannon Dam and Mark Twain Lake, MO .....	\$6,813,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Clarence J. Brown Dam, OH .....	\$1,145,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Clearwater Lake, MO .....	\$3,018,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Cleveland Harbor, OH .....	\$8,357,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Clinton Lake, KS .....	\$2,073,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Cochiti Lake, NM .....	\$6,876,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Cold Brook Lake, SD .....	\$436,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Cold Spring Inlet, NJ .....	\$250,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Colebrook River Lake, CT .....	\$615,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Columbia & Lower Willamette River Below Vancouver, WA & Portland, OR .....	\$24,495,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Columbia River at Baker Bay, WA & OR .....	\$727,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Columbia River at the Mouth, OR & WA .....	\$12,945,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Columbia River Between Chinook and Sand Island, WA .....	\$847,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Columbia River Between Vancouver, WA & the Dalles, OR .....	\$689,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Conant Brook Lake, MA .....	\$210,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Conchas Lake, NM .....	\$1,796,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Conemaugh River Lake, PA .....	\$1,253,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Conneaut Harbor, OH .....	\$1,191,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Cooper River, Charleston Harbor, SC .....	\$4,685,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Coos Bay, OR .....	\$5,043,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Copan Lake, OK .....	\$1,035,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Coquille River, OR .....	\$339,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Coralville Lake, IA .....	\$3,381,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Cordell Hull Dam and Reservoir, TN .....	\$6,813,000	The President

**PRESIDENTIALLY DIRECTED SPENDING ITEMS—Continued**

Agency	Account	Project title	Funding	Member
Corps of Engineers .....	Operation and Maintenance .....	Corpus Christi Ship Channel, TX .....	\$4,523,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Cottage Grove Lake, OR .....	\$1,130,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Cottonwood Springs Lake, SD .....	\$271,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Cougar Lake, OR .....	\$1,582,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Council Grave Lake, KS .....	\$1,739,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Cowanesque Lake, PA .....	\$1,889,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Coyote Valley Dam, Lake Mendocino, CA .....	\$3,829,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Crooked Creek Lake, PA .....	\$1,683,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Cumberland, MD and Ridgeley, WV .....	\$177,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Curwensville Lake, PA .....	\$757,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Dale Hollow Lake, TN .....	\$6,386,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Dardanelle Lock & Dam, AR .....	\$9,754,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Deer Creek Lake, OH .....	\$1,481,000	The President
Corps of Engineers .....	Operation and Maintenance .....	DeGray Lake, AR .....	\$7,003,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Delaware Bay Coastline, Roosevelt Inlet to Lewes Beach, DE .....	\$350,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Delaware Lake, OH .....	\$1,322,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Delaware River at Camden, NJ .....	\$15,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Delaware River, Philadelphia to the Sea, NJ, PA & DE .....	\$19,600,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Delaware River, Philadelphia, PA to Trenton, NJ .....	\$820,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Denison Dam, Lake Texoma, TX & OK .....	\$7,676,000	The President
Corps of Engineers .....	Operation and Maintenance .....	DeQueen Lake, AR .....	\$1,752,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Detroit Lake, OR .....	\$949,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Detroit River, MI .....	\$5,415,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Dewey Lake, KY .....	\$1,775,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Dierks Lake, AR .....	\$1,360,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Dillingham Harbor, AK .....	\$885,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Dillon Lake, OH .....	\$1,366,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Disposal Area Monitoring, ME .....	\$1,000,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Dorena Lake, OR .....	\$1,160,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Dry Creek (Warm Springs) Lake & Channel, CA .....	\$5,139,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Duluth-Superior Harbor, MN & WI .....	\$5,985,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Dworkshak Dam and Reservoir, ID .....	\$2,875,000	The President
Corps of Engineers .....	Operation and Maintenance .....	East Branch Clarion River Lake, PA .....	\$1,524,000	The President
Corps of Engineers .....	Operation and Maintenance .....	East Brimfield Lake, MA .....	\$950,000	The President
Corps of Engineers .....	Operation and Maintenance .....	East Fork, Tombigbee River, MS .....	\$187,000	The President
Corps of Engineers .....	Operation and Maintenance .....	East Lynn Lake, WV .....	\$2,167,000	The President

Corps of Engineers .....	Operation and Maintenance .....	East River, NY .....	\$300,000	The President
Corps of Engineers .....	Operation and Maintenance .....	East Rockaway Inlet, NY .....	\$2,950,000	The President
Corps of Engineers .....	Operation and Maintenance .....	East Sidney Lake, NY .....	\$588,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Eastchester Creek, NY .....	\$4,090,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Eau Galle River Lake, WI .....	\$888,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Ediz Hook, WA .....	\$730,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Edward MacDowell Lake, NH .....	\$560,000	The President
Corps of Engineers .....	Operation and Maintenance .....	El Dorado Lake, KS .....	\$786,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Elk City Lake, KS .....	\$718,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Elkins, WV .....	\$15,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Elvis Stahr (Hickman) Harbor, KY .....	\$40,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Erie Harbor, PA .....	\$555,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Escambia and Conecuh Rivers, FL .....	\$56,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Estelline Springs Experimental Project, TX .....	\$43,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Eufaula Lake, OK .....	\$6,620,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Everett Harbor and Snohomish River, WA .....	\$1,766,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Fall Creek Lake, OR .....	\$1,864,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Fall River Lake, KS .....	\$1,283,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Falls Lake, NC .....	\$1,859,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Farm Creek Reservoirs, IL .....	\$352,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Farmington Dam, CA .....	\$481,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Fern Ridge Lake, OR .....	\$2,362,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Fernandina Harbor, FL .....	\$1,625,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Ferrells Bridge Dam, Lake O' the Pines, TX .....	\$3,485,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Fire Island Inlet to Jones Inlet, NY .....	\$150,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Fishtrap Lake, KY .....	\$2,171,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Flushing Bay and Creek, NY .....	\$60,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Fort Gibson Lake, OK .....	\$11,768,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Fort Randall Dam, Lake Francis Case, SD .....	\$12,210,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Fort Supply Lake, OK .....	\$1,104,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Foster Joseph Sayers Dam, PA .....	\$674,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Fox Point Hurricane Barrier, RI .....	\$500,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Fox River, WI .....	\$4,421,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Francis E Walter Dam, PA .....	\$969,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Franklin Falls Dam, NH .....	\$1,921,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Freeport Harbor, TX .....	\$3,316,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Freshwater Bayou, LA .....	\$2,235,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Friday Harbor, WA .....	\$111,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Ft. Peck Dam and Lake, MT .....	\$6,361,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Galisteo Dam, NM .....	\$591,000	The President



**PRESIDENTIALLY DIRECTED SPENDING ITEMS—Continued**

Agency	Account	Project title	Funding	Member
Corps of Engineers .....	Operation and Maintenance .....	Galveston Harbor and Channel, TX .....	\$13,095,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Garrison Dam, Lake Sakakawea, ND .....	\$14,946,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Gathright Dam and Lake Moomaw, VA .....	\$2,323,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Gavins Point Dam, Lewis and Clark Lake, NE and SD .....	\$8,165,000	The President
Corps of Engineers .....	Operation and Maintenance .....	General Edgar Jadwin Dam and Reservoir, PA .....	\$224,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Georgetown Harbor, SC .....	\$1,250,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Gillham Lake, AR .....	\$1,366,000	The President
Corps of Engineers .....	Operation and Maintenance .....	GIWW, Channel to Victoria, TX .....	\$2,264,000	The President
Corps of Engineers .....	Operation and Maintenance .....	GIWW, Chocolate Bayou, TX .....	\$1,733,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Grand Haven Harbor, MI .....	\$820,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Granger Dam and Lake, TX .....	\$2,588,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Grapevine Lake, TX .....	\$2,735,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Grays Harbor and Chehalis River, WA .....	\$11,140,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Grayson Lake, KY .....	\$1,709,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Great Kills Harbor, S.I., NY .....	\$60,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Great Salt Plains Lake, OK .....	\$347,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Great Salt Pond, Block Island, RI (New Harbor) .....	\$200,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Great South Bay, NY .....	\$60,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Green and Barren Rivers, KY .....	\$1,880,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Green Bay Harbor, WI .....	\$6,459,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Green Peter—Foster Lakes, OR .....	\$3,650,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Green River Lake, KY .....	\$2,202,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Greers Ferry Lake, AR .....	\$7,759,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Gulf Intracoastal Waterway, AL .....	\$5,735,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Gulf Intracoastal Waterway, LA .....	\$24,777,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Gulf Intracoastal Waterway, TX .....	\$26,046,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Gulfport Harbor, MS .....	\$5,000,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Hampton Rds, Norfolk and Newport News Harbor, VA (Drift Removal) .....	\$882,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Hancock Brook Lake, CT .....	\$442,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Harlan County Lake, NE .....	\$2,312,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Harry S Truman Dam and Reservoir, MO .....	\$9,393,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Hartwell Lake, GA & SC .....	\$11,999,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Helena Harbor, AR .....	\$40,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Heyburn Lake, OK .....	\$748,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Hidden Dam, Hensley Lake, CA .....	\$2,170,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Hills Creek Lake, OR .....	\$843,000	The President

Corps of Engineers .....	Operation and Maintenance .....	Hillsdale Lake, KS .....	\$860,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Hodges Village Dam, MA .....	\$567,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Holland Harbor, MI .....	\$2,151,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Homer Harbor, AK .....	\$400,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Homme Lake, ND .....	\$252,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Hop Brook Lake, CT .....	\$917,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Hopkinton-Everett Lakes, NH .....	\$1,148,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Hords Creek Lake, TX .....	\$1,605,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Houma Navigation Canal, LA .....	\$2,569,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Houston Ship Channel, TX .....	\$15,063,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Howard Hanson Dam, WA .....	\$3,694,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Hudson River Channel, NY .....	\$60,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Hudson River, NY (MAINT) .....	\$1,270,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Hudson River, NY (O & C) .....	\$1,550,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Hugo Lake, OK .....	\$1,738,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Hulah Lake, OK .....	\$2,097,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Humboldt Harbor and Bay, CA .....	\$3,010,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Ice Harbor Lock & Dam, WA .....	\$5,828,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Illinois Waterway, IL & IN (MVR Portion) .....	\$2,648,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Illinois Waterway, IL & IN (MVS Portion) .....	\$31,736,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Indiana Harbor, Confined Disposal Facility, IN .....	\$13,500,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Indiana Harbor, IN .....	\$2,330,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Inspection of Completed Environmental Projects, GA .....	\$48,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Inspection of Completed Environmental Projects, IL .....	\$65,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Inspection of Completed Environmental Projects, OR .....	\$34,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Inspection of Completed Environmental Projects, WA .....	\$74,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Inspection of Completed Environmental Projects, WV .....	\$10,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Inspection of Completed Works, AK .....	\$168,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Inspection of Completed Works, AR .....	\$673,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Inspection of Completed Works, AZ .....	\$199,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Inspection of Completed Works, CA .....	\$6,702,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Inspection of Completed Works, CO .....	\$773,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Inspection of Completed Works, CT .....	\$392,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Inspection of Completed Works, DC .....	\$140,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Inspection of Completed Works, FL .....	\$1,200,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Inspection of Completed Works, GA .....	\$108,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Inspection of Completed Works, HI .....	\$705,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Inspection of Completed Works, IA .....	\$483,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Inspection of Completed Works, ID .....	\$324,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Inspection of Completed Works, IL .....	\$1,298,000	The President

**PRESIDENTIALLY DIRECTED SPENDING ITEMS—Continued**

Agency	Account	Project title	Funding	Member
Corps of Engineers	Operation and Maintenance	Inspection of Completed Works, IN	\$709,000	The President
Corps of Engineers	Operation and Maintenance	Inspection of Completed Works, KS	\$220,000	The President
Corps of Engineers	Operation and Maintenance	Inspection of Completed Works, KY	\$665,000	The President
Corps of Engineers	Operation and Maintenance	Inspection of Completed Works, LA	\$1,487,000	The President
Corps of Engineers	Operation and Maintenance	Inspection of Completed Works, MA	\$414,000	The President
Corps of Engineers	Operation and Maintenance	Inspection of Completed Works, MD	\$155,000	The President
Corps of Engineers	Operation and Maintenance	Inspection of Completed Works, ME	\$215,000	The President
Corps of Engineers	Operation and Maintenance	Inspection of Completed Works, MI	\$158,000	The President
Corps of Engineers	Operation and Maintenance	Inspection of Completed Works, MN	\$633,000	The President
Corps of Engineers	Operation and Maintenance	Inspection of Completed Works, MO	\$1,491,000	The President
Corps of Engineers	Operation and Maintenance	Inspection of Completed Works, MS	\$183,000	The President
Corps of Engineers	Operation and Maintenance	Inspection of Completed Works, MT	\$115,000	The President
Corps of Engineers	Operation and Maintenance	Inspection of Completed Works, NC	\$244,000	The President
Corps of Engineers	Operation and Maintenance	Inspection of Completed Works, ND	\$452,000	The President
Corps of Engineers	Operation and Maintenance	Inspection of Completed Works, NE	\$714,000	The President
Corps of Engineers	Operation and Maintenance	Inspection of Completed Works, NH	\$126,000	The President
Corps of Engineers	Operation and Maintenance	Inspection of Completed Works, NJ	\$205,000	The President
Corps of Engineers	Operation and Maintenance	Inspection of Completed Works, NM	\$639,000	The President
Corps of Engineers	Operation and Maintenance	Inspection of Completed Works, NV	\$63,000	The President
Corps of Engineers	Operation and Maintenance	Inspection of Completed Works, NY	\$898,000	The President
Corps of Engineers	Operation and Maintenance	Inspection of Completed Works, OH	\$555,000	The President
Corps of Engineers	Operation and Maintenance	Inspection of Completed Works, OK	\$255,000	The President
Corps of Engineers	Operation and Maintenance	Inspection of Completed Works, OR	\$636,000	The President
Corps of Engineers	Operation and Maintenance	Inspection of Completed Works, PA	\$880,000	The President
Corps of Engineers	Operation and Maintenance	Inspection of Completed Works, RI	\$48,000	The President
Corps of Engineers	Operation and Maintenance	Inspection of Completed Works, SC	\$70,000	The President
Corps of Engineers	Operation and Maintenance	Inspection of Completed Works, SD	\$75,000	The President
Corps of Engineers	Operation and Maintenance	Inspection of Completed Works, TN	\$50,000	The President
Corps of Engineers	Operation and Maintenance	Inspection of Completed Works, TX	\$1,520,000	The President
Corps of Engineers	Operation and Maintenance	Inspection of Completed Works, UT	\$84,000	The President
Corps of Engineers	Operation and Maintenance	Inspection of Completed Works, VA	\$369,000	The President
Corps of Engineers	Operation and Maintenance	Inspection of Completed Works, VT	\$109,000	The President
Corps of Engineers	Operation and Maintenance	Inspection of Completed Works, WA	\$725,000	The President
Corps of Engineers	Operation and Maintenance	Inspection of Completed Works, WI	\$91,000	The President
Corps of Engineers	Operation and Maintenance	Inspection of Completed Works, WV	\$336,000	The President
Corps of Engineers	Operation and Maintenance	Inspection of Completed Works, WY	\$25,000	The President

Corps of Engineers .....	Operation and Maintenance .....	International Water Studies, ME .....	\$17,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Intracoastal Waterway, Caloosahatchee River to Anclote River, FL .....	\$2,000,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Intracoastal Waterway, Delaware R to Chesapeake Bay, DE & MD .....	\$28,390,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Intracoastal Waterway, Jacksonville to Miami, FL .....	\$689,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Intracoastal Waterway, Rehoboth Bay to Delaware Bay, DE .....	\$70,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Isabella Lake, CA .....	\$1,802,000	The President
Corps of Engineers .....	Operation and Maintenance .....	J. Bennett Johnston Waterway, LA .....	\$13,598,000	The President
Corps of Engineers .....	Operation and Maintenance .....	J. Edward Roush Lake, IN .....	\$944,000	The President
Corps of Engineers .....	Operation and Maintenance .....	J. Percy Priest Dam and Reservoir, TN .....	\$4,818,000	The President
Corps of Engineers .....	Operation and Maintenance .....	J. Strom Thurmond Lake, GA & SC .....	\$10,316,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Jackson Hole Levees, WY .....	\$877,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Jacksonville Harbor, FL .....	\$7,035,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Jamaica Bay, NY .....	\$220,000	The President
Corps of Engineers .....	Operation and Maintenance .....	James River Channel, VA .....	\$4,479,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Jemez Canyon Dam, NM .....	\$756,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Jennings Randolph Lake, MD & WV .....	\$1,779,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Jim Chapman Lake, TX .....	\$1,718,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Jim Woodruff Lock and Dam, Lake Seminole, FL, AL & GA .....	\$9,732,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Joe Pool Lake, TX .....	\$1,096,000	The President
Corps of Engineers .....	Operation and Maintenance .....	John Day Lock & Dam, OR & WA .....	\$8,901,000	The President
Corps of Engineers .....	Operation and Maintenance .....	John H. Kerr Lake, VA & NC .....	\$11,585,000	The President
Corps of Engineers .....	Operation and Maintenance .....	John Martin Reservoir, CO .....	\$2,554,000	The President
Corps of Engineers .....	Operation and Maintenance .....	John Redmond Dam and Reservoir, KS .....	\$3,685,000	The President
Corps of Engineers .....	Operation and Maintenance .....	John W. Flannagan Dam and Reservoir, VA .....	\$2,104,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Johnstown, PA .....	\$34,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Jones Inlet, NY .....	\$150,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Kanawha River Locks & Dam, WV .....	\$14,089,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Kanopolis Lake, KS .....	\$2,288,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Kaskaskia River Navigation, IL .....	\$2,148,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Kaw Lake, OK .....	\$2,751,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Kentucky River, KY .....	\$10,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Kewaunee Harbor, WI .....	\$40,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Keweenaw Waterway, MI .....	\$37,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Keystone Lake, OK .....	\$6,947,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Kinzua Dam and Allegheny Reservoir, PA .....	\$1,338,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Knightville Dam, MA .....	\$1,421,000	The President
Corps of Engineers .....	Operation and Maintenance .....	LAC Qui Parle Lakes, Minnesota River, MN .....	\$627,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Lake Ashtabula and Baldhill Dam, ND .....	\$1,351,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Lake Kemp, TX .....	\$327,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Lake Michigan Diversion, IL .....	\$683,000	The President

**PRESIDENTIALLY DIRECTED SPENDING ITEMS—Continued**

Agency	Account	Project title	Funding	Member
Corps of Engineers .....	Operation and Maintenance .....	Lake Montauk Harbor, NY .....	\$100,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Lake Providence Harbor, LA .....	\$500,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Lake Shelbyville, IL .....	\$5,454,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Lake Traverse, SD & MN .....	\$598,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Lake Washington Ship Canal, WA .....	\$9,246,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Laurel River Lake, KY .....	\$1,927,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Lavon Lake, TX .....	\$3,497,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Lewisville Dam, TX .....	\$3,549,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Libby Dam, MT .....	\$1,948,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Little Blue River Lakes, MO .....	\$845,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Little Goose Lock & Dam, WA .....	\$2,551,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Little Sodus Bay Harbor, NY .....	\$5,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Littleville Lake, MA .....	\$889,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Long Branch Lake, MO .....	\$949,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Long Island Intracoastal Waterway, NY .....	\$100,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Long Island Sound DMMP, CT .....	\$2,000,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Lookout Point Lake, OR .....	\$2,766,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Lorain Harbor, OH .....	\$880,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Los Angeles County Drainage Area, CA .....	\$4,597,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Lost Creek Lake, OR .....	\$3,636,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Lower Cape May Meadows, Cape May Point, NJ .....	\$400,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Lower Granite Lock & Dam, WA .....	\$7,651,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Lower Monumental Lock & Dam, WA .....	\$6,735,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Loyalhanna Lake, PA .....	\$1,346,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Lucky Peak Lake, ID .....	\$2,597,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Lynnhaven Inlet, VA .....	\$277,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Madison Parish Port, LA .....	\$99,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Mahoning Creek Lake, PA .....	\$1,286,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Manasquan River, NJ .....	\$160,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Mansfield Hollow Lake, CT .....	\$861,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Manteo (Shallowbag) Bay, NC .....	\$3,945,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Marion Lake, KS .....	\$1,820,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Martins Fork Lake, KY .....	\$814,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Martis Creek Lake, CA & NV .....	\$1,192,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Masonboro Inlet and Connecting Channels, NC .....	\$2,300,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Massillon Local Protection Project, OH .....	\$37,000	The President

Corps of Engineers .....	Operation and Maintenance .....	Matagorda Ship Channel, TX .....	\$4,627,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Mattituck Harbor, NY .....	\$60,000	The President
Corps of Engineers .....	Operation and Maintenance .....	McClellan-Kerr Arkansas River Navigation System, AR .....	\$40,016,000	The President
Corps of Engineers .....	Operation and Maintenance .....	McClellan-Kerr Arkansas River Navigation System, OK .....	\$6,173,000	The President
Corps of Engineers .....	Operation and Maintenance .....	McNary Lock & Dam, OR & WA .....	\$7,137,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Melvorn Lake, KS .....	\$2,151,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Merced County Streams, CA .....	\$451,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Mermentau River, LA .....	\$1,913,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Michael J. Kirwan Dam and Reservoir, OH .....	\$1,089,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Middle Rio Grande Endangered Species Collaborative Pro .....	\$3,150,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Middlesboro Cumberland River Basin, KY .....	\$113,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Milford Lake, KS .....	\$2,057,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Mill Creek Lake, WA .....	\$3,834,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Millwood Lake, AR .....	\$5,122,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Minnesota River, MN .....	\$256,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Mispiation River, DE .....	\$30,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Mississinewa Lake, IN .....	\$974,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Mississippi Flood Control, OH .....	\$1,727,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Mississippi River between Missouri River and Minneapolis (MVP Portion), MN .....	\$44,130,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Mississippi River between Missouri River and Minneapolis (MVR Portion), IL .....	\$58,714,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Mississippi River BTWN Missouri River and Minneapolis (MVS Portion), IL .....	\$22,227,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Mississippi River btwn the Ohio and Missouri Rivers (Reg Works), MO & IL .....	\$23,403,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Mississippi River Outlets at Venice, LA .....	\$2,838,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Mississippi River, Baton Rouge to the Gulf of Mexico, LA .....	\$54,994,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Missouri River—Kenslers Bend, NE to Sioux City, IA .....	\$129,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Missouri River—Rulo to the Mouth, IA, KS, MO & NE .....	\$7,000,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Missouri River—Sioux City to Rulo, IA, KS, MO & NE .....	\$2,610,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Mobile Harbor, AL .....	\$23,996,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Mojave River Dam, CA .....	\$288,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Monongahela River, PA .....	\$16,758,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Monroe Lake, IN .....	\$1,101,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Morehead City Harbor, NC .....	\$9,500,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Moriches Inlet, NY .....	\$100,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Morro Bay Harbor, CA .....	\$3,300,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Mosquito Creek Lake, OH .....	\$995,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Mount Morris Dam, NY .....	\$2,696,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Mouth of Yazoo River, MS .....	\$112,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Mt. St. Helens Sediment Control, WA .....	\$279,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Mud Mountain Dam, WA .....	\$3,056,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Murderkill River, DE .....	\$30,000	The President

**PRESIDENTIALLY DIRECTED SPENDING ITEMS—Continued**

Agency	Account	Project title	Funding	Member
Corps of Engineers	Operation and Maintenance	Muskingum River Lakes, OH	\$7,306,000	The President
Corps of Engineers	Operation and Maintenance	Mystic River, CT	\$250,000	The President
Corps of Engineers	Operation and Maintenance	Narrows Dam, Lake Greeson, AR	\$5,005,000	The President
Corps of Engineers	Operation and Maintenance	Narrows of Lake Champlain, VT & NY	\$85,000	The President
Corps of Engineers	Operation and Maintenance	Navarro Mills Lake, TX	\$4,168,000	The President
Corps of Engineers	Operation and Maintenance	Neah Bay, WA	\$67,000	The President
Corps of Engineers	Operation and Maintenance	New Bedford and Fairhaven Harbor, MA	\$500,000	The President
Corps of Engineers	Operation and Maintenance	New Bedford Fairhaven and Acushnet Hurricane Barrier, MA	\$619,000	The President
Corps of Engineers	Operation and Maintenance	New Hogan Lake, CA	\$2,515,000	The President
Corps of Engineers	Operation and Maintenance	New Jersey Intracoastal Waterway, NJ	\$250,000	The President
Corps of Engineers	Operation and Maintenance	New Madrid Harbor (Mile 889), MO	\$240,000	The President
Corps of Engineers	Operation and Maintenance	New Madrid Harbor, MO	\$400,000	The President
Corps of Engineers	Operation and Maintenance	New Melones Lake, Downstream Channel, CA	\$1,898,000	The President
Corps of Engineers	Operation and Maintenance	New River Inlet, NC	\$700,000	The President
Corps of Engineers	Operation and Maintenance	New York and New Jersey Channels, NY	\$4,100,000	The President
Corps of Engineers	Operation and Maintenance	New York Harbor, NY	\$3,698,000	The President
Corps of Engineers	Operation and Maintenance	New York Harbor, NY & NJ (Drift Removal)	\$7,000,000	The President
Corps of Engineers	Operation and Maintenance	New York Harbor, NY & NJ (Prevention of Obstructive Deposits)	\$1,045,000	The President
Corps of Engineers	Operation and Maintenance	Newark Bay, Hackensack and Passaic Rivers, NJ	\$150,000	The President
Corps of Engineers	Operation and Maintenance	Newport Bay Harbor, CA	\$1,780,000	The President
Corps of Engineers	Operation and Maintenance	Newtown Creek, NY	\$150,000	The President
Corps of Engineers	Operation and Maintenance	Nimrod Lake, AR	\$2,289,000	The President
Corps of Engineers	Operation and Maintenance	Nolin Lake, KY	\$2,477,000	The President
Corps of Engineers	Operation and Maintenance	Nome Harbor, AK	\$820,000	The President
Corps of Engineers	Operation and Maintenance	Norfolk Harbor, VA	\$11,343,000	The President
Corps of Engineers	Operation and Maintenance	Norfolk Lake, AR	\$5,717,000	The President
Corps of Engineers	Operation and Maintenance	North Branch Kokosing River Lake, OH	\$274,000	The President
Corps of Engineers	Operation and Maintenance	North Fork of Pound River Lake, VA	\$630,000	The President
Corps of Engineers	Operation and Maintenance	North Hartland Lake, VT	\$772,000	The President
Corps of Engineers	Operation and Maintenance	North San Gabriel Dam and Lake Georgetown, TX	\$2,382,000	The President
Corps of Engineers	Operation and Maintenance	North Springfield Lake, VT	\$854,000	The President
Corps of Engineers	Operation and Maintenance	Northfield Brook Lake, CT	\$610,000	The President
Corps of Engineers	Operation and Maintenance	O C Fisher Dam and Lake, TX	\$1,164,000	The President
Corps of Engineers	Operation and Maintenance	Oahe Dam, Lake Oahe, SD & ND	\$11,816,000	The President
Corps of Engineers	Operation and Maintenance	Oakland Harbor, CA	\$9,255,000	The President
Corps of Engineers	Operation and Maintenance	Oceanside Harbor, CA	\$1,500,000	The President

Corps of Engineers .....	Operation and Maintenance .....	Ohio River Locks and Dams, KY, IL, IN & OH .....	\$40,748,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Ohio River Locks and Dams, PA, OH & WV .....	\$21,470,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Ohio River Locks and Dams, WV, KY & OH .....	\$35,276,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Ohio River Open Channel Work, KY, IL, IN & OH .....	\$5,836,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Ohio River Open Channel Work, PA, OH & WV .....	\$516,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Ohio River Open Channel Work, WV, KY & OH .....	\$2,996,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Okatibbee Lake, MS .....	\$1,703,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Okeechobee Waterway, FL .....	\$2,357,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Old Hickory Lock and Dam, TN .....	\$12,304,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Ontonagon Harbor, MI .....	\$1,122,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Oologah Lake, OK .....	\$4,106,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Optima Lake, OK .....	\$219,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Orwell Lake, MN .....	\$533,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Osceola Harbor, AR .....	\$800,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Otter Brook Lake, NH .....	\$553,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Ouachita and Black Rivers, AR and LA .....	\$9,605,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Ozark-Jeta Taylor Lock & Dam, AR .....	\$5,725,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Paint Creek Lake, OH .....	\$1,216,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Painted Rock Dam, AZ .....	\$1,320,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Paintsville Lake, KY .....	\$1,231,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Palm Beach Harbor, FL .....	\$3,225,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Panama City Harbor, FL .....	\$2,055,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Papillion Creek, NE .....	\$847,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Pascagoula Harbor, MS .....	\$10,900,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Passaic River Flood Warning System, NJ .....	\$553,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Pat Mayse Lake, TX .....	\$1,208,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Patoka Lake, IN .....	\$887,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Pearl River, MS & LA .....	\$193,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Pearson-Skubitz Bill Hill Lake, KS .....	\$1,472,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Pensacola Harbor, FL .....	\$67,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Pensacola Reservoir, Lake of the Cherokees, OK .....	\$114,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Perry Lake, KS .....	\$2,015,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Philpott Lake, VA & NC .....	\$5,638,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Pine and Mathews Canyons Lakes, NV .....	\$341,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Pine Creek Lake, OK .....	\$1,276,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Pine Flat Lake, CA .....	\$3,201,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Pipestem Lake, ND .....	\$496,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Plymouth Harbor, MA .....	\$200,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Point Judith Harbor of Refuge, RI .....	\$300,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Pomme De Terre Lake, MO .....	\$2,231,000	The President



PRESIDENTIALLY DIRECTED SPENDING ITEMS—Continued

Agency	Account	Project title	Funding	Member
Corps of Engineers	Operation and Maintenance	Pomona Lake, KS	\$2,047,000	The President
Corps of Engineers	Operation and Maintenance	Ponce De Leon Inlet, FL	\$600,000	The President
Corps of Engineers	Operation and Maintenance	Poplar Island, MD	\$8,200,000	The President
Corps of Engineers	Operation and Maintenance	Port Chester Harbor, NY	\$60,000	The President
Corps of Engineers	Operation and Maintenance	Port Orford, OR	\$38,000	The President
Corps of Engineers	Operation and Maintenance	Portsmouth Harbor and Piscataqua River, NH	\$500,000	The President
Corps of Engineers	Operation and Maintenance	Potomac and Anacostia River, DC (Drift Removal)	\$805,000	The President
Corps of Engineers	Operation and Maintenance	Presque Isle Harbor, MI	\$335,000	The President
Corps of Engineers	Operation and Maintenance	Proctor Lake, TX	\$2,324,000	The President
Corps of Engineers	Operation and Maintenance	Project Condition Surveys, AK	\$930,000	The President
Corps of Engineers	Operation and Maintenance	Project Condition Surveys, AL	\$100,000	The President
Corps of Engineers	Operation and Maintenance	Project Condition Surveys, CA	\$2,442,000	The President
Corps of Engineers	Operation and Maintenance	Project Condition Surveys, CT	\$1,050,000	The President
Corps of Engineers	Operation and Maintenance	Project Condition Surveys, DC	\$30,000	The President
Corps of Engineers	Operation and Maintenance	Project Condition Surveys, DE	\$105,000	The President
Corps of Engineers	Operation and Maintenance	Project Condition Surveys, FL	\$1,300,000	The President
Corps of Engineers	Operation and Maintenance	Project Condition Surveys, GA	\$151,000	The President
Corps of Engineers	Operation and Maintenance	Project Condition Surveys, HI	\$570,000	The President
Corps of Engineers	Operation and Maintenance	Project Condition Surveys, IL	\$104,000	The President
Corps of Engineers	Operation and Maintenance	Project Condition Surveys, IN	\$185,000	The President
Corps of Engineers	Operation and Maintenance	Project Condition Surveys, LA	\$65,000	The President
Corps of Engineers	Operation and Maintenance	Project Condition Surveys, MA	\$1,200,000	The President
Corps of Engineers	Operation and Maintenance	Project Condition Surveys, MD	\$400,000	The President
Corps of Engineers	Operation and Maintenance	Project Condition Surveys, ME	\$750,000	The President
Corps of Engineers	Operation and Maintenance	Project Condition Surveys, MI	\$410,000	The President
Corps of Engineers	Operation and Maintenance	Project Condition Surveys, MN	\$82,000	The President
Corps of Engineers	Operation and Maintenance	Project Condition Surveys, MS	\$75,000	The President
Corps of Engineers	Operation and Maintenance	Project Condition Surveys, NC	\$295,000	The President
Corps of Engineers	Operation and Maintenance	Project Condition Surveys, NH	\$275,000	The President
Corps of Engineers	Operation and Maintenance	Project Condition Surveys, NJ	\$1,653,000	The President
Corps of Engineers	Operation and Maintenance	Project Condition Surveys, NY	\$2,123,000	The President
Corps of Engineers	Operation and Maintenance	Project Condition Surveys, OH	\$295,000	The President
Corps of Engineers	Operation and Maintenance	Project Condition Surveys, OR	\$200,000	The President
Corps of Engineers	Operation and Maintenance	Project Condition Surveys, PA	\$120,000	The President
Corps of Engineers	Operation and Maintenance	Project Condition Surveys, RI	\$500,000	The President
Corps of Engineers	Operation and Maintenance	Project Condition Surveys, SC	\$465,000	The President

Corps of Engineers .....	Operation and Maintenance .....	Project Condition Surveys, TX .....	\$223,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Project Condition Surveys, VA .....	\$850,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Project Condition Surveys, WA .....	\$524,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Project Condition Surveys, WI .....	\$283,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Prompton Lake, PA .....	\$434,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Puget Sound and Tributary Waters, WA .....	\$1,011,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Punxsutawney, PA .....	\$22,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Quillayute River, WA .....	\$266,000	The President
Corps of Engineers .....	Operation and Maintenance .....	R D Bailey Lake, WV .....	\$1,927,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Raritan River to Arthur Kill Cut-off, NJ .....	\$200,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Raritan River, NJ .....	\$500,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Rathbun Lake, IA .....	\$3,019,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Ray Roberts Lake, TX .....	\$1,324,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Raystown Lake, PA .....	\$3,847,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Red Lake Reservoir, MN .....	\$150,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Red Rock Dam and Lake, Red Rock, IA .....	\$4,567,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Redwood City Harbor .....	\$6,745,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Removal of Aquatic Growth, FL .....	\$4,445,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Removal of Aquatic Growth, LA .....	\$1,410,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Removal of Aquatic Growth, VA .....	\$50,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Rend Lake, IL .....	\$5,386,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Reservoirs at Headwaters of Mississippi River, MN .....	\$3,398,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Richard B Russell Dam & Lake, GA & SC .....	\$9,209,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Richmond Harbor, CA .....	\$9,589,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Robert S. Keer Lock and Dam and Reservoir, OK .....	\$8,441,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Rochester Harbor, NY .....	\$5,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Rogue River at Gold Beach, OR .....	\$565,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Rollinson Channel, NC .....	\$50,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Rosedale Harbor, MS .....	\$600,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Roseville Local Protection Project, OH .....	\$35,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Rough River Lake, KY .....	\$2,742,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Rudee Inlet, VA .....	\$795,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Sabine-Neches Waterway, TX .....	\$13,399,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Sacramento River (30 Foot Project), CA .....	\$3,351,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Sacramento River and Tributaries (Debris Control), CA .....	\$1,712,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Sacramento River Shallow Draft Channel, CA .....	\$234,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Saginaw River, MI .....	\$3,624,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Salamonie Lake, IN .....	\$904,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Salem River, NJ .....	\$100,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Salt Creek and Tributaries, NE .....	\$1,079,000	The President

**PRESIDENTIALLY DIRECTED SPENDING ITEMS—Continued**

Agency	Account	Project title	Funding	Member
Corps of Engineers .....	Operation and Maintenance .....	Sam Rayburn Dam and Reservoir, TX .....	\$6,247,000	The President
Corps of Engineers .....	Operation and Maintenance .....	San Francisco Bay, Delta Model Structure, CA .....	\$1,118,000	The President
Corps of Engineers .....	Operation and Maintenance .....	San Francisco Harbor and Bay, CA (Drift Removal) .....	\$2,945,000	The President
Corps of Engineers .....	Operation and Maintenance .....	San Francisco Harbor, CA .....	\$3,237,000	The President
Corps of Engineers .....	Operation and Maintenance .....	San Joaquin River, Port of Stockton, CA .....	\$3,554,000	The President
Corps of Engineers .....	Operation and Maintenance .....	San Juan Harbor, PR .....	\$1,200,000	The President
Corps of Engineers .....	Operation and Maintenance .....	San Pablo Bay and Mare Island Strait, CA .....	\$2,650,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Sandusky Harbor, OH .....	\$1,465,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Santa Ana River Basin, CA .....	\$3,094,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Santa Barbara Harbor, CA .....	\$1,690,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Santa Rosa Dam and Lake, NM .....	\$1,099,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Sardis Lake, OK .....	\$1,254,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Savannah Harbor, GA .....	\$15,087,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Savannah River Below Augusta, GA .....	\$574,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Saylorville Lake, IA .....	\$5,032,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Scheduling Reservoir Operations, AZ .....	\$31,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Scheduling Reservoir Operations, CA .....	\$1,915,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Scheduling Reservoir Operations, CO .....	\$612,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Scheduling Reservoir Operations, FL .....	\$30,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Scheduling Reservoir Operations, ID .....	\$484,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Scheduling Reservoir Operations, KS .....	\$100,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Scheduling Reservoir Operations, MD .....	\$108,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Scheduling Reservoir Operations, MO .....	\$327,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Scheduling Reservoir Operations, MT .....	\$145,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Scheduling Reservoir Operations, ND .....	\$138,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Scheduling Reservoir Operations, NM .....	\$477,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Scheduling Reservoir Operations, OK .....	\$900,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Scheduling Reservoir Operations, OR .....	\$69,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Scheduling Reservoir Operations, PA .....	\$59,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Scheduling Reservoir Operations, SD .....	\$81,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Scheduling Reservoir Operations, TX .....	\$149,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Scheduling Reservoir Operations, UT .....	\$594,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Scheduling Reservoir Operations, WA .....	\$537,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Scheduling Reservoir Operations, WY .....	\$118,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Schuylkill River, PA .....	\$200,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Seattle Harbor, WA .....	\$172,000	The President

Corps of Engineers .....	Operation and Maintenance .....	Sebewaing River, MI .....	\$1,200,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Shark River, NJ .....	\$400,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Shenango River Lake, PA .....	\$6,992,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Shinnecock Inlet, NY .....	\$100,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Shoal Harbor and Compton Creek, NJ .....	\$80,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Silver Lake Harbor, NC .....	\$250,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Siuslaw River, OR .....	\$647,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Skiatook Lake, OK .....	\$1,414,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Skipanon Channel, OR .....	\$6,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Smithville Lake, MO .....	\$1,850,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Somerville Lake, TX .....	\$3,366,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Souris River, ND .....	\$286,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Southern New York Flood Control Projects, NY .....	\$807,000	The President
Corps of Engineers .....	Operation and Maintenance .....	St. Clair River, MI .....	\$533,000	The President
Corps of Engineers .....	Operation and Maintenance .....	St. Joseph Harbor, MI .....	\$755,000	The President
Corps of Engineers .....	Operation and Maintenance .....	St. Marys River, MI .....	\$23,010,000	The President
Corps of Engineers .....	Operation and Maintenance .....	St. Lucie Inlet, FL .....	\$350,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Stamford Hurricane Barrier, CT .....	\$434,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Stillaguamish River, WA .....	\$165,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Stillhouse Hollow Dam, TX .....	\$2,096,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Stillwater Lake, PA .....	\$452,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Stockton Lake, MO .....	\$4,370,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Stonewall Jackson Lake, WV .....	\$1,148,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Sturgeon Bay Harbor and Lake Michigan Ship Canal, WI .....	\$20,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Success Lake, CA .....	\$1,989,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Suisun Bay Channel, CA .....	\$4,019,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Summersville Lake, WV .....	\$3,234,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Surry Mountain Lake, NH .....	\$760,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Surveillance of Northern Boundary Waters, IL .....	\$685,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Surveillance of Northern Boundary Waters, IN .....	\$126,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Surveillance of Northern Boundary Waters, MI .....	\$2,612,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Surveillance of Northern Boundary Waters, MN .....	\$359,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Surveillance of Northern Boundary Waters, ND .....	\$35,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Surveillance of Northern Boundary Waters, NY .....	\$579,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Surveillance of Northern Boundary Waters, OH .....	\$234,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Surveillance of Northern Boundary Waters, OR .....	\$10,400,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Surveillance of Northern Boundary Waters, PA .....	\$98,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Surveillance of Northern Boundary Waters, WA .....	\$50,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Surveillance of Northern Boundary Waters, WI .....	\$388,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Sutton Lake, WV .....	\$2,413,000	The President

**PRESIDENTIALLY DIRECTED SPENDING ITEMS—Continued**

Agency	Account	Project title	Funding	Member
Corps of Engineers .....	Operation and Maintenance .....	Table Rock Lake, MO & AR .....	\$7,550,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Tacoma, Puyallup River, WA .....	\$130,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Tampa Harbor, FL .....	\$5,620,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Taylorsville Lake, KY .....	\$1,104,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Tenkiller Ferry Lake, OK .....	\$6,625,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Tennessee River, TN .....	\$16,833,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Tennessee-Tombigbee Waterway Wildlife Mitigation, AL & MS .....	\$2,500,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Tennessee-Tombigbee Waterway, AL & MS .....	\$25,000,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Terminus Dam, Lake Kaweah, CA .....	\$2,037,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Texas City Ship Channel, TX .....	\$4,000,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Texas Water Allocation Assessment, TX .....	\$1,000,000	The President
Corps of Engineers .....	Operation and Maintenance .....	The Dalles Lock & Dam, WA & OR .....	\$8,769,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Thomaston Dam, CT .....	\$1,136,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Tillamook Bay and Bar, OR .....	\$48,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Tioga-Hammond Lakes, PA .....	\$2,456,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Tionesta Lake, PA .....	\$1,812,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Toledo Harbor, OH .....	\$6,034,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Tom Jenkins Dam, OH .....	\$894,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Toronto Lake, KS .....	\$3,522,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Town Bluff Dam, B A Steinhagen Lake, TX .....	\$2,505,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Townshend Lake, VT .....	\$814,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Trinidad Lake, CO .....	\$960,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Tully Lake, MA .....	\$666,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Tuttle Creek Lake, KS .....	\$2,062,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Two Harbors, MN .....	\$350,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Two Rivers Dam, NM .....	\$404,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Tygart Lake, WV .....	\$1,478,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Umpqua River, OR .....	\$1,174,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Union City Lake, PA .....	\$440,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Union Lake, MO .....	\$6,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Union Village Dam, VT .....	\$627,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Upper Rio Grande Water Operations Model Study, NM .....	\$4,188,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Ventura Harbor, CA .....	\$6,426,000	The President
Corps of Engineers .....	Operation and Maintenance .....	W. Kerr Scott Dam and Reservoir, NC .....	\$3,421,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Waco Lake, TX .....	\$3,711,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Wallace Lake, LA .....	\$244,000	The President

Corps of Engineers	Operation and Maintenance	Wallisville Lake, TX	\$2,114,000	The President
Corps of Engineers	Operation and Maintenance	Walter F. George Lock and Dam, AL & GA	\$8,972,000	The President
Corps of Engineers	Operation and Maintenance	Washington Harbor, DC	\$25,000	The President
Corps of Engineers	Operation and Maintenance	Water/Environmental Certification, AL	\$76,000	The President
Corps of Engineers	Operation and Maintenance	Water/Environmental Certification, FL	\$380,000	The President
Corps of Engineers	Operation and Maintenance	Water/Environmental Certification, MS	\$66,000	The President
Corps of Engineers	Operation and Maintenance	Water/Environmental Certification, VA	\$104,000	The President
Corps of Engineers	Operation and Maintenance	Waterway from Empire to the Gulf, LA	\$47,000	The President
Corps of Engineers	Operation and Maintenance	Waterway from Intracoastal Waterway to Bayou Dulac, LA	\$48,000	The President
Corps of Engineers	Operation and Maintenance	Waterway on the Coast of Virginia, VA	\$201,000	The President
Corps of Engineers	Operation and Maintenance	Waukegan Harbor, IL	\$492,000	The President
Corps of Engineers	Operation and Maintenance	Waurika Lake, OK	\$1,431,000	The President
Corps of Engineers	Operation and Maintenance	Webbers Falls Lock & Dam, OK	\$5,903,000	The President
Corps of Engineers	Operation and Maintenance	West Fork of Mill Creek Lake, OH	\$745,000	The President
Corps of Engineers	Operation and Maintenance	West Hill Dam, MA	\$572,000	The President
Corps of Engineers	Operation and Maintenance	West Point Dam and Lake, GA & AL	\$9,591,000	The President
Corps of Engineers	Operation and Maintenance	West Thompson Lake, CT	\$569,000	The President
Corps of Engineers	Operation and Maintenance	Westchester Creek, NY	\$100,000	The President
Corps of Engineers	Operation and Maintenance	Westville Lake, MA	\$784,000	The President
Corps of Engineers	Operation and Maintenance	White River, AR	\$40,000	The President
Corps of Engineers	Operation and Maintenance	Whitlow Ranch Dam, AZ	\$300,000	The President
Corps of Engineers	Operation and Maintenance	Whitney Lake, TX	\$8,348,000	The President
Corps of Engineers	Operation and Maintenance	Whitney Point Lake, NY	\$685,000	The President
Corps of Engineers	Operation and Maintenance	Wicomico River, MD	\$1,676,000	The President
Corps of Engineers	Operation and Maintenance	Willamette River at Willamette Falls, OR	\$918,000	The President
Corps of Engineers	Operation and Maintenance	Willamette River Bank Protection, OR	\$41,000	The President
Corps of Engineers	Operation and Maintenance	Willapa River and Harbor, WA	\$40,000	The President
Corps of Engineers	Operation and Maintenance	William H. Harsha Lake, OH	\$1,029,000	The President
Corps of Engineers	Operation and Maintenance	Willow Creek Lake, OR	\$629,000	The President
Corps of Engineers	Operation and Maintenance	Wilmington Harbor, DE	\$2,320,000	The President
Corps of Engineers	Operation and Maintenance	Wilmington Harbor, NC	\$12,155,000	The President
Corps of Engineers	Operation and Maintenance	Wilson Lake, KS	\$2,017,000	The President
Corps of Engineers	Operation and Maintenance	Wister Lake, OK	\$856,000	The President
Corps of Engineers	Operation and Maintenance	Wolf Creek Dam, Lake Cumberland, KY	\$7,835,000	The President
Corps of Engineers	Operation and Maintenance	Wolf River Harbor, TN	\$373,000	The President
Corps of Engineers	Operation and Maintenance	Woodcock Creek Lake, PA	\$1,041,000	The President
Corps of Engineers	Operation and Maintenance	Woonsocket, RI	\$200,000	The President
Corps of Engineers	Operation and Maintenance	Wright Patman Dam and Lake, TX	\$3,517,000	The President
Corps of Engineers	Operation and Maintenance	Yaquina Bay & Harbor, OR	\$1,790,000	The President
Corps of Engineers	Operation and Maintenance	Yatesville Lake, KY	\$1,143,000	The President

**PRESIDENTIALLY DIRECTED SPENDING ITEMS—Continued**

Agency	Account	Project title	Funding	Member
Corps of Engineers .....	Operation and Maintenance .....	Yazoo River, MS .....	\$154,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Yellow Bend Port, AR .....	\$115,000	The President
Corps of Engineers .....	Operation and Maintenance .....	York Indian Rock Dam, PA .....	\$478,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Youghiogheny River Lake, PA & MD .....	\$2,335,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Yuba River, CA .....	\$146,000	The President
Corps of Engineers .....	Operation and Maintenance .....	Operation and Maintenance Items Not Listed Under States .....		
Corps of Engineers .....	Operation and Maintenance .....	ACTIONS FOR CHANGE TO IMPROVE OPERATION AND MAINTENANCE .....	\$5,000,000	The President
Corps of Engineers .....	Operation and Maintenance .....	AQUATIC NUISANCE CONTROL RESEARCH .....	\$690,000	The President
Corps of Engineers .....	Operation and Maintenance .....	ASSET MANAGEMENT/FACILITIES AND EQUIPMENT MAINTENANCE .....	\$4,750,000	The President
Corps of Engineers .....	Operation and Maintenance .....	BUDGET/MANAGEMENT SUPPORT FOR O&M BUSINESS LINES .....	\$6,792,000	The President
Corps of Engineers .....	Operation and Maintenance .....	COASTAL INLET RESEARCH PROGRAM .....	\$3,000,000	The President
Corps of Engineers .....	Operation and Maintenance .....	CONTINUING AUTHORITIES PROJECTS NOT REQUIRING SPECIFIC LEGISLATION .....		The President
Corps of Engineers .....	Operation and Maintenance .....	BENEFICIAL USES OF DREDGED MATERIAL (SECTION 204/145) .....	\$10,000,000	The President
Corps of Engineers .....	Operation and Maintenance .....	NATIONAL MITIGATION PROJECTS (SECTION 111) .....	\$9,043,000	The President
Corps of Engineers .....	Operation and Maintenance .....	RESPONSE TO CLIMATE CHANGE AT CORPS PROJECTS .....	\$2,500,000	The President
Corps of Engineers .....	Operation and Maintenance .....	CULTURAL RESOURCES (NAGPRA/CURATION) .....	\$2,500,000	The President
Corps of Engineers .....	Operation and Maintenance .....	DREDGE MCFARLAND READY RESERVE .....	\$12,000,000	The President
Corps of Engineers .....	Operation and Maintenance .....	DREDGE WHEELER READY RESERVE .....	\$12,000,000	The President
Corps of Engineers .....	Operation and Maintenance .....	DREDGING DATA AND LOCK PERFORMANCE MONITORING SYSTEM .....	\$1,150,000	The President
Corps of Engineers .....	Operation and Maintenance .....	DREDGING OPERATIONS AND ENVIRONMENTAL RESTORATION (DOER) .....	\$7,000,000	The President
Corps of Engineers .....	Operation and Maintenance .....	DREDGING OPERATIONS TECHNICAL SUPPORT PROGRAM (DOTS) .....	\$2,000,000	The President
Corps of Engineers .....	Operation and Maintenance .....	EARTHQUAKE HAZARDS REDUCTION PROGRAM .....	\$270,000	The President
Corps of Engineers .....	Operation and Maintenance .....	FACILITY PROTECTION .....	\$7,000,000	The President
Corps of Engineers .....	Operation and Maintenance .....	FERC HYDROPOWER COORDINATION .....	\$3,000,000	The President
Corps of Engineers .....	Operation and Maintenance .....	FISH AND WILDLIFE/OPERATING FISH HATCHERY REIMBURSEMENT .....	\$4,700,000	The President
Corps of Engineers .....	Operation and Maintenance .....	GREAT LAKES SEDIMENT TRANSPORT MODEL .....	\$1,200,000	The President
Corps of Engineers .....	Operation and Maintenance .....	INLAND WATERWAY NAVIGATION CHARTS .....	\$3,800,000	The President
Corps of Engineers .....	Operation and Maintenance .....	INSPECTION OF COMPLETED WORKS .....	\$1,780,000	The President
Corps of Engineers .....	Operation and Maintenance .....	LONG-TERM OPTION ASSESSMENT FOR LOW USE NAVIGATION .....	\$1,500,000	The President
Corps of Engineers .....	Operation and Maintenance .....	MONITORING OF COMPLETED NAVIGATION PROJECTS .....	\$1,800,000	The President
Corps of Engineers .....	Operation and Maintenance .....	NATIONAL COASTAL MAPPING PROGRAM .....	\$12,000,000	The President
Corps of Engineers .....	Operation and Maintenance .....	NATIONAL DAM SAFETY PROGRAM .....	\$18,000,000	The President
Corps of Engineers .....	Operation and Maintenance .....	NATIONAL EMERGENCY PREPAREDNESS PROGRAM [NEPP] .....	\$7,000,000	The President
Corps of Engineers .....	Operation and Maintenance .....	NATIONAL (LEVEE) FLOOD INVENTORY .....	\$10,000,000	The President
Corps of Engineers .....	Operation and Maintenance .....	NATIONAL (MULTI PROJECT) NATURAL RESOURCES MANAGEMENT ACTIVITIES .....	\$4,230,000	The President
Corps of Engineers .....	Operation and Maintenance .....	NATIONAL PORTFOLIO ASSESSMENT FOR REALLOCATION .....	\$571,000	The President

Corps of Engineers .....	Operation and Maintenance .....	NATIONWIDE EVALUATION OF HYDROPOWER REHAB .....	\$2,000,000	The President
Corps of Engineers .....	Operation and Maintenance .....	PROGRAM DEVELOPMENT TECHNICAL SUPPORT [ABS-P2, WINABS] .....	\$300,000	The President
Corps of Engineers .....	Operation and Maintenance .....	PROTECTION OF NAVIGATION .....		The President
Corps of Engineers .....	Operation and Maintenance .....	REMOVAL OF SUNKEN VESSELS .....	\$500,000	The President
Corps of Engineers .....	Operation and Maintenance .....	PROTECT, CLEAR AND STRAIGHTEN CHANNELS (SEC 3) .....	\$50,000	The President
Corps of Engineers .....	Operation and Maintenance .....	WATERBORNE COMMERCE STATISTICS .....	\$4,771,000	The President
Corps of Engineers .....	Operation and Maintenance .....	HARBOR MAINTENANCE FEE DATA COLLECTION .....	\$825,000	The President
Corps of Engineers .....	Operation and Maintenance .....	RECREATION ONE STOP [RIS] NATIONAL RECREATION RESERVATION .....	\$65,000	The President
Corps of Engineers .....	Operation and Maintenance .....	REGIONAL SEDIMENT MANAGEMENT DEMONSTRATION PROGRAM .....	\$5,000,000	The President
Corps of Engineers .....	Operation and Maintenance .....	RELIABILITY MODELS PROGRAM FOR MAJOR REHAB .....	\$608,000	The President
Corps of Engineers .....	Operation and Maintenance .....	RESERVE FOR KEY EMERGENCY MAINTENANCE/REPAIRS .....		The President
Corps of Engineers .....	Operation and Maintenance .....	SHORELINE USE PERMIT STUDY .....	\$250,000	The President
Corps of Engineers .....	Operation and Maintenance .....	WATER OPERATIONS TECHNICAL SUPPORT [WOTS] .....	\$653,000	The President
Bureau of Reclamation .....	California Bay-Delta Restoration .....	CALFED .....	\$41,000,000	The President
Bureau of Reclamation .....	Water and Related Resources .....	AK CHIN WATER RIGHTS SETTLEMENT ACT PROJECT .....	\$10,600,000	The President
Bureau of Reclamation .....	Water and Related Resources .....	ANIMAS-LA PLATA PROJECT .....	\$54,188,000	The President
Bureau of Reclamation .....	Water and Related Resources .....	ARBuckle PROJECT .....	\$234,000	The President
Bureau of Reclamation .....	Water and Related Resources .....	ARIZONA WATER RIGHTS SETTLEMENT ACT .....	\$1,400,000	The President
Bureau of Reclamation .....	Water and Related Resources .....	BALMORHEA PROJECT .....	\$58,000	The President
Bureau of Reclamation .....	Water and Related Resources .....	BOISE AREA PROJECTS .....	\$5,401,000	The President
Bureau of Reclamation .....	Water and Related Resources .....	CACHUMA PROJECT .....	\$1,674,000	The President
Bureau of Reclamation .....	Water and Related Resources .....	CALIFORNIA INVESTIGATIONS PROGRAM .....	\$500,000	The President
Bureau of Reclamation .....	Water and Related Resources .....	CALLEGUAS MUNICIPAL WATER DISTRICT RECYCLING PLANT .....	\$1,400,000	The President
Bureau of Reclamation .....	Water and Related Resources .....	CANADIAN RIVER PROJECT .....	\$217,000	The President
Bureau of Reclamation .....	Water and Related Resources .....	CARLSBAD PROJECT .....	\$3,719,000	The President
Bureau of Reclamation .....	Water and Related Resources .....	CENTRAL VALLEY PROJECTS .....		
Bureau of Reclamation .....	Water and Related Resources .....	AMERICAN RIVER DIVISION .....	\$9,576,000	The President
Bureau of Reclamation .....	Water and Related Resources .....	AUBURN-FOLSOM SOUTH UNIT .....	\$1,663,000	The President
Bureau of Reclamation .....	Water and Related Resources .....	DELTA DIVISION .....	\$20,405,000	The President
Bureau of Reclamation .....	Water and Related Resources .....	EAST SIDE DIVISION .....	\$4,426,000	The President
Bureau of Reclamation .....	Water and Related Resources .....	FRIANT DIVISION .....	\$6,256,000	The President
Bureau of Reclamation .....	Water and Related Resources .....	MISCELLANEOUS PROJECT PROGRAMS .....	\$11,796,000	The President
Bureau of Reclamation .....	Water and Related Resources .....	REPLACEMENTS, ADDITIONS, AND EXTRAORDINARY MAINT .....	\$25,000,000	The President
Bureau of Reclamation .....	Water and Related Resources .....	SACRAMENTO RIVER DIVISION .....	\$16,896,000	The President
Bureau of Reclamation .....	Water and Related Resources .....	SAN FELIPE DIVISION .....	\$1,651,000	The President
Bureau of Reclamation .....	Water and Related Resources .....	SAN JOAQUIN DIVISION .....	\$7,356,000	The President
Bureau of Reclamation .....	Water and Related Resources .....	SHASTA DIVISION .....	\$8,054,000	The President
Bureau of Reclamation .....	Water and Related Resources .....	TRINITY RIVER DIVISION .....	\$10,495,000	The President
Bureau of Reclamation .....	Water and Related Resources .....	WATER AND POWER OPERATIONS .....	\$9,280,000	The President
Bureau of Reclamation .....	Water and Related Resources .....	WEST SAN JOAQUIN DIVISION, SAN LUIS UNIT .....	\$8,525,000	The President



**PRESIDENTIALLY DIRECTED SPENDING ITEMS—Continued**

Agency	Account	Project title	Funding	Member
Bureau of Reclamation	Water and Related Resources	YIELD FEASIBILITY INVESTIGATION	\$450,000	The President
Bureau of Reclamation	Water and Related Resources	COLLBRAN PROJECT	\$3,885,000	The President
Bureau of Reclamation	Water and Related Resources	COLORADO INVESTIGATIONS PROGRAM	\$300,000	The President
Bureau of Reclamation	Water and Related Resources	COLORADO RIVER BASIN, CENTRAL ARIZONA PROJECT	\$18,408,000	The President
Bureau of Reclamation	Water and Related Resources	COLORADO RIVER FRONT WORK AND LEVEE SYSTEM	\$2,350,000	The President
Bureau of Reclamation	Water and Related Resources	COLORADO-BIG THOMPSON PROJECT	\$13,800,000	The President
Bureau of Reclamation	Water and Related Resources	COLUMBIA AND SNAKE RIVER SALMON RECOVERY PROJECT FCRPS ESA IMP	\$18,000,000	The President
Bureau of Reclamation	Water and Related Resources	COLUMBIA BASIN PROJECT	\$16,454,000	The President
Bureau of Reclamation	Water and Related Resources	CROOKED RIVER PROJECT	\$839,000	The President
Bureau of Reclamation	Water and Related Resources	DESCHUTES PROJECT	\$982,000	The President
Bureau of Reclamation	Water and Related Resources	EASTERN NEW MEXICO INVESTIGATIONS PROGRAM	\$50,000	The President
Bureau of Reclamation	Water and Related Resources	EASTERN OREGON PROJECTS	\$845,000	The President
Bureau of Reclamation	Water and Related Resources	FORT PECK DRY PRAIRIE RURAL WATER SYSTEM	\$14,000,000	The President
Bureau of Reclamation	Water and Related Resources	FRUITGROWERS DAM PROJECT	\$259,000	The President
Bureau of Reclamation	Water and Related Resources	FRYINGPAN-ARKANSAS PROJECT	\$8,650,000	The President
Bureau of Reclamation	Water and Related Resources	GRAND VALLEY UNIT, CRBSCP, TITLE II	\$1,477,000	The President
Bureau of Reclamation	Water and Related Resources	HALFWAY WASH PROJECT STUDY	\$125,000	The President
Bureau of Reclamation	Water and Related Resources	HUNGRY HORSE PROJECT	\$1,865,000	The President
Bureau of Reclamation	Water and Related Resources	HUNTLEY PROJECT	\$87,000	The President
Bureau of Reclamation	Water and Related Resources	HYRUM PROJECT	\$198,000	The President
Bureau of Reclamation	Water and Related Resources	IDAHO INVESTIGATIONS PROGRAM	\$300,000	The President
Bureau of Reclamation	Water and Related Resources	JICARILLA APACHE RESERVATION RURAL WATER SYSTEM	\$5,000,000	The President
Bureau of Reclamation	Water and Related Resources	KANSAS INVESTIGATIONS PROGRAM	\$25,000	The President
Bureau of Reclamation	Water and Related Resources	KENDRICK PROJECT	\$3,258,000	The President
Bureau of Reclamation	Water and Related Resources	KLAMATH DAM REMOVAL STUDY	\$2,000,000	The President
Bureau of Reclamation	Water and Related Resources	KLAMATH PROJECT	\$25,000,000	The President
Bureau of Reclamation	Water and Related Resources	LAHONTAN BASIN PROJECT	\$7,276,000	The President
Bureau of Reclamation	Water and Related Resources	LAKE MEAD/LAS VEGAS WASH PROGRAM	\$2,000,000	The President
Bureau of Reclamation	Water and Related Resources	LAKE TAHOE REGIONAL WETLANDS	\$2,602,000	The President
Bureau of Reclamation	Water and Related Resources	LEADVILLE/ARKANSAS RIVER RECOVERY	\$2,965,000	The President
Bureau of Reclamation	Water and Related Resources	LEWIS AND CLARK RURAL WATER SYSTEM	\$16,000,000	The President
Bureau of Reclamation	Water and Related Resources	LEWISTON ORCHARDS PROJECTS	\$1,264,000	The President
Bureau of Reclamation	Water and Related Resources	LONG BEACH AREA WATER RECLAMATION AND REUSE PROJECT	\$1,400,000	The President
Bureau of Reclamation	Water and Related Resources	LONG BEACH DESALINATION RESEARCH AND DEVELOPMENT	\$700,000	The President
Bureau of Reclamation	Water and Related Resources	LOWER COLORADO INVESTIGATIONS PROGRAM	\$250,000	The President
Bureau of Reclamation	Water and Related Resources	LOWER RIO GRANDE VALLEY WATER RESOURCES CONSERVATION PROGRAM	\$2,050,000	The President

Bureau of Reclamation	Water and Related Resources	LOWER YELLOWSTONE PROJECT	\$547,000	The President
Bureau of Reclamation	Water and Related Resources	MANCOS PROJECT	\$178,000	The President
Bureau of Reclamation	Water and Related Resources	MCGEE CREEK PROJECT	\$664,000	The President
Bureau of Reclamation	Water and Related Resources	MID-DAKOTA RURAL WATER PROJECT	\$15,000	The President
Bureau of Reclamation	Water and Related Resources	MIDDLE RIO GRANDE PROJECT	\$23,910,000	The President
Bureau of Reclamation	Water and Related Resources	MILK RIVER PROJECT	\$1,800,000	The President
Bureau of Reclamation	Water and Related Resources	MILK RIVER/ST. MARY DIVERSION REHABILITATION PROJECT	\$4,000,000	The President
Bureau of Reclamation	Water and Related Resources	MINIDOKA AREA PROJECTS	\$7,168,000	The President
Bureau of Reclamation	Water and Related Resources	MIRAGE FLATS PROJECT	\$135,000	The President
Bureau of Reclamation	Water and Related Resources	MNI WICONI PROJECT	\$37,480,000	The President
Bureau of Reclamation	Water and Related Resources	MONTANA INVESTIGATIONS	\$140,000	The President
Bureau of Reclamation	Water and Related Resources	MOON LAKE PROJECT	\$80,000	The President
Bureau of Reclamation	Water and Related Resources	MOUNTAIN PARK PROJECT	\$525,000	The President
Bureau of Reclamation	Water and Related Resources	NAVAJO NATION INVESTIGATIONS PROGRAM	\$200,000	The President
Bureau of Reclamation	Water and Related Resources	NEWTON PROJECT	\$98,000	The President
Bureau of Reclamation	Water and Related Resources	NORMAN PROJECT	\$477,000	The President
Bureau of Reclamation	Water and Related Resources	NORTH PLATTE PROJECT	\$1,617,000	The President
Bureau of Reclamation	Water and Related Resources	NORTHERN ARIZONA INVESTIGATIONS PROGRAM	\$350,000	The President
Bureau of Reclamation	Water and Related Resources	NORTHERN UTAH INVESTIGATIONS PROGRAM	\$700,000	The President
Bureau of Reclamation	Water and Related Resources	NUECES RIVER PROJECT	\$741,000	The President
Bureau of Reclamation	Water and Related Resources	OGDEN RIVER PROJECT	\$390,000	The President
Bureau of Reclamation	Water and Related Resources	OKLAHOMA INVESTIGATIONS PROGRAM	\$150,000	The President
Bureau of Reclamation	Water and Related Resources	OREGON INVESTIGATIONS PROGRAM	\$450,000	The President
Bureau of Reclamation	Water and Related Resources	ORLAND PROJECT	\$703,000	The President
Bureau of Reclamation	Water and Related Resources	PARADOX VALLEY UNIT, CRBSCP, TITLE II	\$2,346,000	The President
Bureau of Reclamation	Water and Related Resources	PECOS RIVER BASIN WATER SALVAGE PROJECT	\$209,000	The President
Bureau of Reclamation	Water and Related Resources	PERKINS COUNTY RURAL WATER SYSTEM	\$2,000,000	The President
Bureau of Reclamation	Water and Related Resources	PHOENIX METROPOLITAN WATER REUSE PROJECT	\$200,000	The President
Bureau of Reclamation	Water and Related Resources	PICK-SLOAN MISSOURI BASIN—GARRISON DIVERSION	\$70,000,000	The President
Bureau of Reclamation	Water and Related Resources	PINE RIVER PROJECT	\$346,000	The President
Bureau of Reclamation	Water and Related Resources	PROVO RIVER PROJECT	\$1,435,000	The President
Bureau of Reclamation	Water and Related Resources	RAPID VALLEY PROJECT	\$79,000	The President
Bureau of Reclamation	Water and Related Resources	RIO GRANDE PROJECT	\$4,999,000	The President
Bureau of Reclamation	Water and Related Resources	ROCKY BOYS/NORTH CENTRAL MONTANA RURAL WATER SYSTEM	\$16,000,000	The President
Bureau of Reclamation	Water and Related Resources	ROGUE RIVER BASIN PROJECT, TALENT DIVISION	\$1,345,000	The President
Bureau of Reclamation	Water and Related Resources	SALT RIVER PROJECT	\$650,000	The President
Bureau of Reclamation	Water and Related Resources	SALTON SEA RESEARCH PROJECT	\$400,000	The President
Bureau of Reclamation	Water and Related Resources	SAN ANGELO PROJECT	\$436,000	The President
Bureau of Reclamation	Water and Related Resources	SAN CARLOS APACHE TRIBE WATER SETTLEMENT ACT	\$325,000	The President
Bureau of Reclamation	Water and Related Resources	SAN DIEGO AREA WATER RECLAMATION PROGRAM	\$3,500,000	The President

**PRESIDENTIALLY DIRECTED SPENDING ITEMS—Continued**

Agency	Account	Project title	Funding	Member
Bureau of Reclamation	Water and Related Resources	SAN GABRIEL BASIN PROJECT	\$1,400,000	The President
Bureau of Reclamation	Water and Related Resources	SAN JOSE AREA WATER RECLAMATION AND REUSE PROGRAM	\$208,000	The President
Bureau of Reclamation	Water and Related Resources	SAN JUAN RIVER BASIN INVESTIGATIONS PROGRAM	\$150,000	The President
Bureau of Reclamation	Water and Related Resources	SAN LUIS VALLEY PROJECT	\$4,880,000	The President
Bureau of Reclamation	Water and Related Resources	SAVAGE RAPIDS DAM REMOVAL	\$1,160,000	The President
Bureau of Reclamation	Water and Related Resources	SCOFIELD PROJECT	\$187,000	The President
Bureau of Reclamation	Water and Related Resources	SHOSHONE PROJECT	\$1,156,000	The President
Bureau of Reclamation	Water and Related Resources	SOBABO WATER RIGHTS SETTLEMENT PROJECT	\$10,000,000	The President
Bureau of Reclamation	Water and Related Resources	SOLANO PROJECT	\$4,109,000	The President
Bureau of Reclamation	Water and Related Resources	SOUTH/CENTRAL ARIZONA INVESTIGATIONS PROGRAM	\$1,000,000	The President
Bureau of Reclamation	Water and Related Resources	SOUTHERN ARIZONA WATER RIGHTS SETTLEMENT ACT PROJECT	\$1,703,000	The President
Bureau of Reclamation	Water and Related Resources	SOUTHERN CALIFORNIA INVESTIGATIONS PROGRAM	\$520,000	The President
Bureau of Reclamation	Water and Related Resources	SOUTHERN NEVADA/UTAH INVESTIGATIONS PROGRAM	\$25,000	The President
Bureau of Reclamation	Water and Related Resources	SOUTHERN NEW MEXICO/WEST TEXAS INV. PROGRAM	\$150,000	The President
Bureau of Reclamation	Water and Related Resources	SOUTHERN UTAH INVESTIGATIONS PROGRAM	\$225,000	The President
Bureau of Reclamation	Water and Related Resources	STRAWBERRY VALLEY PROJECT	\$269,000	The President
Bureau of Reclamation	Water and Related Resources	SUN RIVER PROJECT	\$378,000	The President
Bureau of Reclamation	Water and Related Resources	TEXAS INVESTIGATIONS PROGRAM	\$45,000	The President
Bureau of Reclamation	Water and Related Resources	TUALATIN PROJECT	\$339,000	The President
Bureau of Reclamation	Water and Related Resources	TUCUMCARI PROJECT	\$41,000	The President
Bureau of Reclamation	Water and Related Resources	UMATILLA PROJECT	\$4,310,000	The President
Bureau of Reclamation	Water and Related Resources	UNCOMPAHGRE PROJECT	\$368,000	The President
Bureau of Reclamation	Water and Related Resources	UPPER COLORADO RIVER OPERATIONS PROGRAM	\$250,000	The President
Bureau of Reclamation	Water and Related Resources	UPPER RIO GRANDE BASIN INVESTIGATIONS	\$75,000	The President
Bureau of Reclamation	Water and Related Resources	VENTURA RIVER PROJECT	\$592,000	The President
Bureau of Reclamation	Water and Related Resources	W.C. AUSTIN PROJECT	\$458,000	The President
Bureau of Reclamation	Water and Related Resources	WASHINGTON AREA PROJECTS	\$208,000	The President
Bureau of Reclamation	Water and Related Resources	WASHINGTON INVESTIGATIONS PROGRAM	\$150,000	The President
Bureau of Reclamation	Water and Related Resources	WASHITA BASIN PROJECT	\$1,055,000	The President
Bureau of Reclamation	Water and Related Resources	WEBER BASIN PROJECT	\$2,492,000	The President
Bureau of Reclamation	Water and Related Resources	WEBER RIVER PROJECT	\$159,000	The President
Bureau of Reclamation	Water and Related Resources	WICHITA PROJECT-CHENEY DIVISION	\$405,000	The President
Bureau of Reclamation	Water and Related Resources	WICHITA PROJECT-EQUUS BEDS DIVISION	\$2,050,000	The President
Bureau of Reclamation	Water and Related Resources	YAKIMA PROJECT	\$8,512,000	The President
Bureau of Reclamation	Water and Related Resources	YAKIMA RIVER BASIN WATER ENHANCEMENT PROJECT	\$10,000,000	The President
Bureau of Reclamation	Water and Related Resources	YUMA AREA PROJECTS	\$24,500,000	The President

Bureau of Reclamation .....	Water and Related Resources .....	BUREAU OF RECLAMATION ITEMS NOT LISTED UNDER STATES .....		
Bureau of Reclamation .....	Water and Related Resources .....	COLORADO RIVER BASIN SALINITY CONTROL PROGRAM, TITLE I .....	\$11,450,000	The President
Bureau of Reclamation .....	Water and Related Resources .....	COLORADO RIVER BASIN SALINITY CONTROL PROGRAM, TITLE II .....	\$6,970,000	The President
Bureau of Reclamation .....	Water and Related Resources .....	COLORADO RIVER STORAGE, (CRSP), SECTION 5 .....	\$8,337,000	The President
Bureau of Reclamation .....	Water and Related Resources .....	COLORADO RIVER STORAGE, (CRSP), SECTION 8 .....	\$2,710,000	The President
Bureau of Reclamation .....	Water and Related Resources .....	COLORADO RIVER WATER QUALITY IMPROVEMENT PROGRAM .....	\$233,000	The President
Bureau of Reclamation .....	Water and Related Resources .....	DAM SAFETY PROGRAM .....		The President
Bureau of Reclamation .....	Water and Related Resources .....	DEPARTMENT DAM SAFETY PROGRAM .....	\$2,029,000	The President
Bureau of Reclamation .....	Water and Related Resources .....	INITIATE SOD CORRECTIVE ACTION .....	\$81,600,000	The President
Bureau of Reclamation .....	Water and Related Resources .....	SAFETY OF EVALUATION OF EXISTING DAMS .....	\$18,250,000	The President
Bureau of Reclamation .....	Water and Related Resources .....	DROUGHT EMERGENCY ASSISTANCE PROGRAM .....	\$488,000	The President
Bureau of Reclamation .....	Water and Related Resources .....	EMERGENCY PLANNING & DISASTER RESPONSE PROGRAM .....	\$1,432,000	The President
Bureau of Reclamation .....	Water and Related Resources .....	ENDANGERED SPECIES RECOVERY IMPLEMENTATION PROGRAM .....	\$19,012,000	The President
Bureau of Reclamation .....	Water and Related Resources .....	ENVIRONMENTAL & INTERAGENCY COORDINATION ACTIVITIES .....	\$2,187,000	The President
Bureau of Reclamation .....	Water and Related Resources .....	ENVIRONMENTAL PROGRAM ADMINISTRATION .....	\$947,000	The President
Bureau of Reclamation .....	Water and Related Resources .....	EXAMINATION OF EXISTING STRUCTURES .....	\$7,675,000	The President
Bureau of Reclamation .....	Water and Related Resources .....	FEDERAL BUILDING SEISMIC SAFETY PROGRAM .....	\$1,400,000	The President
Bureau of Reclamation .....	Water and Related Resources .....	GENERAL PLANNING STUDIES .....	\$2,213,000	The President
Bureau of Reclamation .....	Water and Related Resources .....	LAND RESOURCES MANAGEMENT PROGRAM .....	\$8,682,000	The President
Bureau of Reclamation .....	Water and Related Resources .....	LOWER COLORADO RIVER OPERATIONS PROGRAM .....	\$22,128,000	The President
Bureau of Reclamation .....	Water and Related Resources .....	MISCELLANEOUS FLOOD CONTROL OPERATIONS .....	\$777,000	The President
Bureau of Reclamation .....	Water and Related Resources .....	NATIVE AMERICAN AFFAIRS PROGRAM .....	\$6,197,000	The President
Bureau of Reclamation .....	Water and Related Resources .....	NEGOTIATION & ADMINISTRATION OF WATER MARKETING .....	\$1,563,000	The President
Bureau of Reclamation .....	Water and Related Resources .....	OPERATIONS AND PROGRAM MANAGEMENT .....	\$1,651,000	The President
Bureau of Reclamation .....	Water and Related Resources .....	PICK-SLOAN MISSOURI BASIN—OTHER PICK SLOAN .....	\$39,526,000	The President
Bureau of Reclamation .....	Water and Related Resources .....	POWER PROGRAM SERVICES .....	\$1,031,000	The President
Bureau of Reclamation .....	Water and Related Resources .....	PUBLIC ACCESS AND SAFETY PROGRAM .....	\$753,000	The President
Bureau of Reclamation .....	Water and Related Resources .....	RECLAMATION LAW ADMINISTRATION .....	\$2,199,000	The President
Bureau of Reclamation .....	Water and Related Resources .....	RECREATION & FISH & WILDLIFE PROGRAM ADMINISTRATION .....	\$1,625,000	The President
Bureau of Reclamation .....	Water and Related Resources .....	RESEARCH AND DEVELOPMENT .....		The President
Bureau of Reclamation .....	Water and Related Resources .....	DESALINATION AND WATER PURIFICATION PROGRAM .....	\$3,733,000	The President
Bureau of Reclamation .....	Water and Related Resources .....	SCIENCE AND TECHNOLOGY PROGRAM .....	\$10,200,000	The President
Bureau of Reclamation .....	Water and Related Resources .....	RURAL WATER LEGISLATION, TITLE I .....	\$2,348,000	The President
Bureau of Reclamation .....	Water and Related Resources .....	SITE SECURITY .....	\$28,877,000	The President
Bureau of Reclamation .....	Water and Related Resources .....	TITLE XVI WATER RECLAMATION AND REUSE PROGRAM .....	\$2,500,000	The President
Bureau of Reclamation .....	Water and Related Resources .....	UNITED STATES/MEXICO BORDER ISSUES—TECHNICAL SUPPORT .....	\$96,000	The President
Bureau of Reclamation .....	Water and Related Resources .....	WATER CONSERVATION FIELD SERVICES PROGRAM .....	\$6,510,000	The President
Bureau of Reclamation .....	Water and Related Resources .....	WATER CONSERVATION INITIATIVE .....	\$22,192,000	The President

COMPARATIVE STATEMENT OF NEW BUDGET (OBLIGATIONAL) AUTHORITY FOR FISCAL YEAR 2009 AND BUDGET ESTIMATES AND AMOUNTS RECOMMENDED IN THE BILL  
FOR FISCAL YEAR 2010

[In thousands of dollars]

Item	2009 appropriation	Budget estimate	Committee rec- ommendation	Senate Committee recommendation compared with (+ or -)	
				2009 appropriation	Budget estimate
TITLE I—DEPARTMENT OF DEFENSE—CIVIL					
DEPARTMENT OF THE ARMY					
Corps of Engineers—Civil					
Investigations .....	168,100	100,000	170,000	+ 1,900	+ 70,000
Emergency appropriations (Public Law 111–5) .....	25,000	.....	.....	– 25,000	.....
Subtotal, Investigations .....	193,100	100,000	170,000	– 23,100	+ 70,000
Construction .....	2,141,677	1,718,000	1,924,000	– 217,677	+ 206,000
Emergency appropriations (Public Law 110–252) .....	2,835,000	.....	.....	– 2,835,000	.....
Emergency appropriations (Public Law 111–5) .....	2,000,000	.....	.....	– 2,000,000	.....
Subtotal, Construction .....	6,976,677	1,718,000	1,924,000	– 5,052,677	+ 206,000
Mississippi River and tributaries .....	383,823	248,000	340,000	– 43,823	+ 92,000
Emergency appropriations (Public Law 111–5) .....	375,000	.....	.....	– 375,000	.....
Subtotal, Mississippi River and tributaries .....	758,823	248,000	340,000	– 418,823	+ 92,000
Operations and maintenance .....	2,201,900	2,504,000	2,450,000	+ 248,100	– 54,000
Emergency appropriations (Public Law 111–5) .....	2,075,000	.....	.....	– 2,075,000	.....
Emergency appropriations (Public Law 111–32) .....	42,875	.....	.....	– 42,875	.....
Subtotal, Operations and maintenance .....	4,319,775	2,504,000	2,450,000	– 1,869,775	– 54,000
Regulatory program .....	183,000	190,000	190,000	+ 7,000	.....
Emergency appropriations (Public Law 111–5) .....	25,000	.....	.....	– 25,000	.....
Subtotal, Regulatory program .....	208,000	190,000	190,000	– 18,000	.....
FUSRAP .....	140,000	134,000	140,000	.....	+ 6,000

Emergency appropriations (Public Law 111–5) .....	100,000			– 100,000	
Subtotal, Regulatory program .....	240,000	134,000	140,000	– 100,000	+ 6,000
Flood control and coastal emergencies .....		41,000			– 41,000
Emergency appropriations (Public Law 110–252) .....	2,926,000			– 2,926,000	
Emergency appropriations (Public Law 111–32) .....	754,290			– 754,290	
Subtotal, Flood control and coastal emergencies .....	3,680,290	41,000		– 3,680,290	– 41,000
Expenses .....	179,365	184,000	186,000	+ 6,635	+ 2,000
Office of Assistant Secretary of the Army (Civil Works) .....	4,500	6,000	5,000	+ 500	– 1,000
Total, title I, Department of Defense—Civil .....	16,560,530	5,125,000	5,405,000	– 11,155,530	+ 280,000
Appropriations .....	(5,402,365)	(5,125,000)	(5,405,000)	(+ 2,635)	(+ 280,000)
Emergency appropriations .....	(11,158,165)			(– 11,158,165)	
TITLE II—DEPARTMENT OF THE INTERIOR					
Central Utah Project Completion Account					
Central Utah project construction .....	39,373	38,800	38,800	– 573	
Fish, wildlife, and recreation mitigation and conservation .....	987	1,500	1,500	+ 513	
Subtotal .....	40,360	40,300	40,300	– 60	
Program oversight and administration .....	1,640	1,704	1,704	+ 64	
Total, Central Utah project completion account .....	42,000	42,004	42,004	+ 4	
Bureau of Reclamation					
Water and related resources .....	920,259	893,125	993,125	+ 72,866	+ 100,000
Emergency appropriations (Public Law 111–5) .....	1,000,000			– 1,000,000	
Subtotal, Water and related resources .....	1,920,259	893,125	993,125	– 927,134	+ 100,000
Central Valley project restoration fund .....	56,079	35,358	35,358	– 20,721	
California Bay-Delta restoration .....	40,000	31,000	41,000	+ 1,000	+ 10,000
Policy and administration .....	59,400	61,200	61,200	+ 1,800	
Total, Bureau of Reclamation .....	2,075,738	1,020,683	1,130,683	– 945,055	+ 110,000
Total, title II, Department of the Interior .....	2,117,738	1,062,687	1,172,687	– 945,051	+ 110,000
Appropriations .....	(1,117,738)	(1,062,687)	(1,172,687)	(+ 54,949)	(+ 110,000)

COMPARATIVE STATEMENT OF NEW BUDGET (OBLIGATIONAL) AUTHORITY FOR FISCAL YEAR 2009 AND BUDGET ESTIMATES AND AMOUNTS RECOMMENDED IN THE BILL  
FOR FISCAL YEAR 2010—Continued

[In thousands of dollars]

Item	2009 appropriation	Budget estimate	Committee rec- ommendation	Senate Committee recommendation compared with (+ or -)	
				2009 appropriation	Budget estimate
Emergency appropriations .....	(1,000,000)	.....	.....	( - 1,000,000)	.....
<b>TITLE III—DEPARTMENT OF ENERGY</b>					
<b>Energy Programs</b>					
Energy efficiency and renewable energy .....	1,928,540	2,318,602	2,233,967	+ 305,427	- 84,635
Emergency appropriations (Public Law 110-329) .....	250,000	.....	.....	- 250,000	.....
Emergency appropriations (Public Law 111-5) .....	16,800,000	.....	.....	- 16,800,000	.....
Subtotal, Energy efficiency and renewable energy .....	18,978,540	2,318,602	2,233,967	- 16,744,573	- 84,635
Electricity delivery and energy reliability .....	137,000	208,008	179,483	+ 42,483	- 28,525
Emergency appropriations (Public Law 111-5) .....	4,500,000	.....	.....	- 4,500,000	.....
Subtotal, Electricity delivery and energy reliability .....	4,637,000	208,008	179,483	- 4,457,517	- 28,525
Nuclear energy .....	792,000	761,634	761,274	- 30,726	- 360
Clean coal technology:					
Deferral of unobligated balances, fiscal year 2009 .....	149,000	.....	.....	- 149,000	.....
Transfer to fossil energy R&D .....	- 149,000	.....	.....	+ 149,000	.....
Total, Clean coal technology .....	.....	.....	.....	.....	.....
Fossil energy research and development .....	727,320	617,565	699,200	- 28,120	+ 81,635
Emergency appropriations (Public Law 111-5) .....	3,400,000	.....	.....	- 3,400,000	.....
Transfer from clean coal technology .....	149,000	.....	.....	- 149,000	.....
Subtotal, fossil energy research and development .....	4,276,320	617,565	699,200	- 3,577,120	+ 81,635
Naval Petroleum and Oil Shale Reserves .....	19,099	23,627	23,627	+ 4,528	.....
Strategic petroleum reserve .....	205,000	228,573	259,073	+ 54,073	+ 30,500

232

Northeast home heating oil reserve .....	9,800	11,300	11,300	+ 1,500	.....
Energy Information Administration .....	110,595	133,058	110,595	.....	- 22,463
Non-defense environmental clean up .....	261,819	237,517	259,829	- 1,990	+ 22,312
Emergency appropriations (Public Law 111-5) .....	483,000	.....	.....	- 483,000	.....
Subtotal, Non-defense environmental cleanup .....	744,819	237,517	259,829	- 484,990	+ 22,312
Uranium enrichment decontamination and decommissioning fund .....	535,503	559,377	588,322	+ 52,819	+ 28,945
Emergency appropriations (Public Law 111-5) .....	390,000	.....	.....	- 390,000	.....
Offsetting collection .....	.....	- 200,000	.....	.....	+ 200,000
Subtotal, UEDDF .....	925,503	359,377	588,322	- 337,181	+ 228,945
Science .....	4,772,636	4,941,682	4,898,832	+ 126,196	- 42,850
Emergency appropriations (Public Law 111-5) .....	1,600,000	.....	.....	- 1,600,000	.....
Subtotal, Science .....	6,372,636	4,941,682	4,898,832	- 1,473,804	- 42,850
Nuclear Waste Disposal .....	145,390	98,400	98,400	- 46,990	.....
Energy transformation acceleration fund .....	.....	10,000	.....	.....	- 10,000
Emergency appropriations (Public Law 111-5) .....	400,000	.....	.....	- 400,000	.....
Subtotal, Energy transformation acceleration fund .....	400,000	10,000	.....	- 400,000	- 10,000
Innovative Technology Loan Guarantee Program .....	19,880	43,000	43,000	+ 23,120	.....
Offsetting collection .....	- 19,880	- 43,000	- 43,000	- 23,120	.....
Proposed change in subsidy cost .....	440,000	1,500,000	.....	- 440,000	- 1,500,000
(Public Law 110-161):	.....	.....	.....	.....	.....
Advance appropriation from previous years .....	25,000	.....	.....	- 25,000	.....
Emergency appropriations (Public Law 111-5) .....	6,000,000	.....	.....	- 6,000,000	.....
Subtotal, Innovative Technology Guarantee Program .....	6,465,000	1,500,000	.....	- 6,465,000	- 1,500,000
Advanced technology vehicles manufacturing loans program .....	.....	20,000	20,000	+ 20,000	.....
Emergency appropriations (Public Law 110-329) .....	7,510,000	.....	.....	- 7,510,000	.....
Subtotal, Advance technology vehicles manufacturing loans program .....	7,510,000	20,000	20,000	- 7,490,000	.....
Departmental administration .....	272,643	302,071	293,684	+ 21,041	- 8,387
Miscellaneous revenues .....	- 117,317	- 119,740	- 119,740	- 2,423	.....
Net appropriation .....	155,326	182,331	173,944	+ 18,618	- 8,387



COMPARATIVE STATEMENT OF NEW BUDGET (OBLIGATIONAL) AUTHORITY FOR FISCAL YEAR 2009 AND BUDGET ESTIMATES AND AMOUNTS RECOMMENDED IN THE BILL  
FOR FISCAL YEAR 2010—Continued

[In thousands of dollars]

Item	2009 appropriation	Budget estimate	Committee rec- ommendation	Senate Committee recommendation compared with (+ or -)	
				2009 appropriation	Budget estimate
Office of the Inspector General .....	51,927	51,445	51,927	.....	+ 482
Emergency appropriations (Public Law 111-5) .....	15,000	.....	.....	- 15,000	.....
Subtotal, Office of the Inspector General .....	66,927	51,445	51,927	- 15,000	+ 482
Atomic Energy Defense Activities					
National Nuclear Security Administration:					
Weapons activities .....	6,380,000	6,384,431	6,468,267	+ 88,267	+ 83,836
Emergency appropriations (Public Law 111-32) .....	30,000	.....	.....	- 30,000	.....
Defense nuclear nonproliferation .....	1,482,350	2,136,709	2,136,709	+ 654,359	.....
Emergency appropriations (Public Law 111-32) .....	55,000	.....	.....	- 55,000	.....
Naval reactors .....	828,054	1,003,133	973,133	+ 145,079	- 30,000
Office of the Administrator .....	439,190	420,754	420,754	- 18,436	.....
Subtotal, National Nuclear Security Administration .....	9,214,594	9,945,027	9,998,863	+ 784,269	+ 53,836
Defense environmental cleanup .....	5,657,250	5,495,831	5,763,856	+ 106,606	+ 268,025
Emergency appropriations (Public Law 111-5) .....	5,127,000	.....	.....	- 5,127,000	.....
Subtotal, Defense environmental cleanup .....	10,784,250	5,495,831	5,763,856	- 5,020,394	+ 268,025
Other defense activities .....	1,314,063	852,468	854,468	- 459,595	+ 2,000
Defense nuclear waste disposal .....	143,000	98,400	98,400	- 44,600	.....
Total, Atomic Energy Defense Activities .....	21,455,907	16,391,726	16,715,587	- 4,740,320	+ 323,861
Power Marketing Administrations					
Operation and maintenance, Southeastern Power Administration .....	56,940	78,444	78,444	+ 21,504	.....
Offsetting collection .....	- 49,520	- 70,806	- 70,806	- 21,286	.....

Spending in excess of receipts (proposal) .....	.....	1,000	1,000	+ 1,000	.....
Subtotal, O&M, Southeastern Power Administration .....	7,420	8,638	8,638	+ 1,218	.....
Operation and maintenance, Southwestern Power Administration .....	63,414	82,944	82,944	+ 19,530	.....
Offsetting collection .....	— 35,000	— 38,000	— 38,000	— 3,000	.....
Subtotal, O&M, Southwestern Power Administration .....	28,414	44,944	44,944	+ 16,530	.....
Construction, rehabilitation, operation and maintenance, Western Area Power Administration .....	624,830	610,397	610,397	— 14,433	.....
Offsetting collection .....	— 403,118	— 349,807	— 349,807	+ 53,311	.....
Offsetting collection Colorado River Dam Fund .....	— 3,366	— 3,879	— 3,879	— 513	.....
Emergency appropriations (Public Law 111–5) .....	10,000	.....	.....	— 10,000	.....
Subtotal, O&M, Western Area Power Administration .....	228,346	256,711	256,711	+ 28,365	.....
Falcon and Amistad operating and maintenance fund .....	2,959	2,568	2,568	— 391	.....
Total, Power Marketing Administrations .....	267,139	312,861	312,861	+ 45,722	.....
Federal Energy Regulatory Commission					
Salaries and expenses .....	273,400	298,000	298,000	+ 24,600	.....
Revenues applied .....	— 273,400	— 298,000	— 298,000	— 24,600	.....
Total, title III, Department of Energy .....	73,537,001	28,407,706	27,398,221	— 46,138,780	— 1,009,485
Appropriations .....	(26,793,001)	(28,407,706)	(27,398,221)	( + 605,220)	( — 1,009,485)
Emergency appropriations .....	(46,570,000)	.....	.....	( — 46,570,000)	.....
Deferrals .....	(149,000)	.....	.....	( — 149,000)	.....
Previous year advance appropriations .....	(25,000)	.....	.....	( — 25,000)	.....
TITLE IV—INDEPENDENT AGENCIES					
Appalachian Regional Commission .....	75,000	76,000	76,000	+ 1,000	.....
Defense Nuclear Facilities Safety Board .....	25,000	26,086	26,086	+ 1,086	.....
Delta Regional Authority .....	13,000	13,000	13,000	.....	.....
Denali Commission .....	11,800	11,965	11,965	+ 165	.....
Nuclear Regulatory Commission:					
Salaries and expenses .....	1,034,656	1,061,000	1,061,000	+ 26,344	.....
Revenues .....	— 860,857	— 878,102	— 902,402	— 41,545	— 24,300
Subtotal .....	173,799	182,898	158,598	— 15,201	— 24,300

COMPARATIVE STATEMENT OF NEW BUDGET (OBLIGATIONAL) AUTHORITY FOR FISCAL YEAR 2009 AND BUDGET ESTIMATES AND AMOUNTS RECOMMENDED IN THE BILL  
FOR FISCAL YEAR 2010—Continued

[In thousands of dollars]

Item	2009 appropriation	Budget estimate	Committee rec- ommendation	Senate Committee recommendation compared with (+ or -)	
				2009 appropriation	Budget estimate
Office of Inspector General .....	10,860	10,102	10,860	.....	+ 758
Revenues .....	- 9,774	- 9,092	- 9,774	.....	- 682
Subtotal .....	1,086	1,010	1,086	.....	+ 76
Total, Nuclear Regulatory Commission .....	174,885	183,908	159,684	- 15,201	- 24,224
Nuclear Waste Technical Review Board .....	3,811	3,891	3,891	+ 80	.....
Tennessee Valley Authority: Office of Inspector General .....	.....	19,000	.....	.....	- 19,000
Offset .....	.....	- 19,000	.....	.....	+ 19,000
Office of the Federal Coordinator for Alaska natural gas transportation projects .....	4,400	4,466	4,466	+ 66	.....
Total, title IV, Independent agencies .....	307,896	319,316	295,092	- 12,804	- 24,224
TITLE V—GENERAL PROVISIONS					
Western Area Power Administration (borrowing authority) (sec. 301) .....	10,000	.....	.....	- 10,000	.....
Grand total .....	92,533,165	34,914,709	34,271,000	- 58,262,165	- 643,709
Appropriations .....	(33,621,000)	(34,914,709)	(34,271,000)	(+ 650,000)	(- 643,709)
Emergency appropriations .....	(58,738,165)	.....	.....	(- 58,738,165)	.....
Deferrals .....	(149,000)	.....	.....	(- 149,000)	.....
Previous year advance appropriations .....	(25,000)	.....	.....	(- 25,000)	.....

**ORAL ARGUMENT NOT YET SCHEDULED**

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No. 16-1005, consolidated with Nos. 16-1044, 16-1047, 16-1049, 16-1050, 16-1053, 16-1054, 16-1056

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IN THE UNITED STATES COURT OF APPEALS  
FOR THE DISTRICT OF COLUMBIA CIRCUIT

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Americans for Clean Energy, et al.,  
*Petitioners,*  
v.

United States Environmental Protection Agency, and Regina A. McCarthy,  
Administrator,  
*Respondents.*

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On Petitions of Review of Final Action  
by the United States Environmental Protection Agency

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**MOTION OF AMERICAN SOYBEAN ASSOCIATION, U.S. CANOLA  
ASSOCIATION, NATIONAL RENDERERS ASSOCIATION, CANOLA  
COUNCIL OF CANADA, AND ARVEGENIX, INC. FOR LEAVE TO  
PARTICIPATE AS AMICI CURIAE IN SUPPORT OF PETITIONERS**

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Jerome C. Muys, Jr. (Bar # 53064)  
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Morgan M. Gerard (Not Admitted)  
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Dated: September 15, 2016

*Counsel for Amici Curiae*

American Soybean Association, U.S. Canola Association, National Renderers Association, Canola Council of Canada, and Arvegenix, Inc. (collectively the “Movants”) hereby submit this Motion for Leave to Participate as *Amici Curiae* in Support of Petitioners in the above captioned proceeding (the “Motion”) pursuant to Federal Rule of Appellate Procedure 29(b) and D.C. Circuit Rule 29(b).

Counsel for Movants asked counsel for the Parties to these consolidated cases their positions on this Motion. As of the time of this filing, Americans for Clean Energy, American Coalition for Ethanol, Biotechnology Innovation Organization, Growth Energy, National Corn Growers Association, National Sorghum Producers, Renewable Fuels Association, National Farmers Union, and Monroe Energy LLC did not consent to this Motion. All other parties either consented or took no position on this Motion.

In further support of this Motion, Movants state as follows:

1) This proceeding concerns the United States Environmental Protection Agency’s (“EPA” or “Agency”) Final Rule, the Renewable Fuel Standard Program: Standards for 2014, 2015, and 2016 and Biomass-Based Diesel Volume for 2017, promulgated pursuant to Section 211(o) of the Clean Air Act, 42 U.S.C. § 7545(o). See 80 Fed. Reg. 77420 (Dec. 14, 2015). The Final Rule established the annual percentage volume standards for cellulosic biofuel, biomass-based

diesel, advanced biofuel, and total renewable fuel that applies to all motor vehicle gasoline and diesel produced or imported in the years 2014, 2015, and 2016 under the Renewable Fuel Standards (“RFS”) program. The Final Rule also established the volume standards for biomass-based diesel for 2017.

2) Movants are “on-the-ground” businesses and national, not-for-profit trade associations that believe in a strong RFS program, consequently, they believe that larger volume standards than proposed by EPA are warranted and reasonable. As the producers of feedstocks used to synthesize biomass-based diesel fuel, Movants represent the industry participants most invested in the industry, and particularly affected by the Final Rule. Thus, Movants will provide a unique perspective that will aid the Court’s deliberations.

3) Prompted by Congress’s desire to promote non-petroleum transportation fuels for use in standard engine designs in the modern vehicle marketplace, Movants made significant investment to produce, expand, and improve these feedstocks as a substitute for petroleum-derived diesel. Diesel operates in a market distinct from regular petroleum gasoline as diesel fuel is typically utilized in particular engine types found in, among other things, heavy-duty trucks, buses, jets, military vehicles, mining equipment, marine engines, farm equipment, and other off-road vehicles, and even used to heat homes. Thus, Movants, as participants in the biomass-based diesel supply chain, operate in a specialized

market-space within transportation fuels, and hold views distinct from other biofuels that are active in the gasoline sector.

4) Movants have an especially strong interest in the development of sound energy policy and economically responsible environmental regulations because, as the feedstock producers, these organizations and their members need to plan strategically and financially to maintain a commercially viable advanced biofuels industry, making the RFS program critical to their business success.

5) Movant American Soybean Association represents nearly 600,000 U.S. soybean producers across 30 states. While advanced biodiesel is now or can be produced using a diverse and growing volume of feedstocks (e.g., soybean oil, canola oil, rendered animal fats, pennycress oil, refined cooking oil/grease, and algae), soybean oil remains the largest source of biodiesel feedstock. The American Soybean Association primarily focuses on policy development and implementation for its members.

6) Movant U.S. Canola Association represents all industry segments, including farmers, processors, food manufacturers, exporters, seed companies, and crop protection companies, and includes a number of producers in all five domestic canola growing regions. The U.S. Canola Association helps its members develop and implement agricultural policies, promote efficient production of the crops, and

develop markets for products. Like soybean oil, canola oil is a major source of advanced biodiesel feedstock.

7) Movant National Renderers Association represents 36 member companies that operate 178 rendering plants across the U.S. and Canada. All combined, these member companies account for 95 percent of the North American rendering production. Like soybean oil and canola oil, recycled animal fats and refined cooking oil/grease are a significant feedstock for the production of advanced biodiesel. In 2014, renderers contributed approximately 10 billion pounds of recycled animal fats and refined used cooking oil/grease for use as feedstocks for biomass-based diesel, which was equivalent to 34 percent of the market. During the first four months of 2015, renderers supplied almost 26 percent of total biomass-based diesel feedstocks. The National Renderers Association represents its members' interests to regulatory and other governmental agencies, promotes the greater use of animal by-products, and fosters the opening and expansion of trade.

8) Movant Canola Council of Canada includes all members of the canola value chain such as seed and input companies, growers, exporters, processors, and biodiesel producers. Members of the Canola Council include companies that own and operate U.S. biodiesel facilities that utilize canola from Canada as a primary feedstock and that have participated in the RFS program and have an economic stake in the implementation of the program. The Canola Council's mission is to



enhance the industry's ability to sustainably produce and supply seed, oil, and protein meal products that offer superior value to customers throughout the world.

9) Movant Arvegenix, Inc. is developing the pennycress plant as a new feedstock for biomass-based diesel. Pennycress is an off-season and winter crop that allows farmers to continue to generate revenue during months when the fields are usually fallow. Because field pennycress has ideal properties for the use in advanced biodiesel, the company plans for pennycress to develop into a major source feedstock

10) Some Movants participated in the administrative process and filed public comments on EPA's Proposed Rule, the Renewable Fuel Standard Program: Standards for 2014, 2015, and 2016 and Biomass-Based Diesel Volume for 2017. See 80 Fed. Reg. 33100 (Jun. 10, 2015). Movants felt compelled to participate in this proceeding to explain the consequences to the biomass-based diesel industry, and the Final Rule's impact on their business practices that would flow from the Court's decision to uphold EPA's waiver for lowered advanced biofuel volumes under the RFS program. Further, Movants believe that advanced biomass-based diesel and a strong RFS program provide multiple energy, economic, and environmental benefits.

11) Movants are not aware of any Party or *amicus curiae* to this proceeding that could provide their perspective. Accordingly, Movants believe that their

participation will not be repetitive of facts or legal argument made in the principal briefs. Instead, Movants will focus on points not made or adequately addressed that are unique to them and relevant to the Court's consideration.

12) D.C. Circuit Rule 29 permits the filing of a motion for leave to participate as *amicus curiae* up to seven days after the filing of the principal brief of the party being supported. Movants are filing this motion as soon as practicable. If permitted to file a brief, Movants would file a document within the briefing schedule established by this Court on June 24, 2016 (Doc. # 1621554).

13) Counsel for Movants represents that the Movants listed in the signature block below consent to the filing of this Motion.

WHEREFORE, Movants respectfully request leave to file a brief pursuant to the schedule and any other direction established by the Court.

Dated: September 15, 2016

Respectfully submitted,

/s/ Jerome C. Muys, Jr.

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**FOR NATIONAL RENDERERS  
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**CERTIFICATE OF COMPLIANCE**

This Motion complies with Federal Rules of Appellate Procedure 27(d)(1)&(2) and 29(b) and D.C. Circuit Rule 27 and 29 because it meets the prescribed format requirements, does not exceed 20 pages, and is being filed as promptly as practicable after the case was docketed in this Court. This Motion also complies with the typeface requirements of Fed. R. App. P. 32(a)(5) and the type-style requirements of Fed. R. App. P. 32(a)(6) because it has been prepared using Microsoft Word in 14-point Times New Roman, a proportionally spaced typeface.

Dated: September 15, 2016

Respectfully submitted,

/s/ Jerome C. Muys, Jr.

**CORPORATE AND FINANCIAL DISCLOSURE STATEMENT**

Pursuant to Federal Rule of Appellate Procedure 26.1 and D.C. Circuit Rule 26.1, and D.C. Circuit Rule 29(b):

- American Soybean Association, U.S. Canola Association, National Renderers Association, and Canola Council of Canada are not-for-profit trade associations as defined in D.C. Circuit Rule 26.1(b). The trade associations have no parent company or companies and have issued no stock; therefore, no publicly-held company owns any such stock.
- Arvegnix, Inc. does not have a parent company. No publicly-held company owns 10% or more of the company's stock.

The Movant's general nature and purpose, insofar as relevant to this litigation, is provided above in this Motion.

Dated: September 15, 2016

Respectfully submitted,

/s/ Jerome C. Muys, Jr.

**CERTIFICATE AS TO PARTIES, RULINGS, AND RELATED CASES**

Pursuant to D.C. Circuit Rule 28(a)(1), counsel certifies as follows: except for the *amici curiae* on this Motion, all parties, intervenors, and *amici curiae* appearing in this Court are, to the best of my knowledge, listed in the Certificates as to Parties, Rulings Under Review, and Related Cases to Petitioners' Initial Opening Briefs [Doc. #1634783 and #1634785].

Dated: September 15, 2016

Respectfully submitted,

/s/ Jerome C. Muys, Jr.

**CERTIFICATE OF SERVICE**

I certify that on September 15, 2016 , I electronically filed the foregoing document with the Clerk of Court for the United States Court of Appeals for the District of Columbia Circuit using the Court's CM/ECF system for service on all registered counsel of record in Case No. 16-1005, and consolidated cases.

Dated: September 15, 2016

/s/ Jerome C. Muys, Jr.

UNITED STATES COURT OF APPEALS  
FOR THE DISTRICT OF COLUMBIA CIRCUIT

Americans for Clean Energy, et al.,

Petitioners,

v.

Environmental Protection Agency,

Respondent.

Case No.: 16-1005 (and consolidated cases)

**MOTION OF CVR ENERGY, INC. FOR LEAVE TO FILE BRIEF  
AS AMICUS CURIAE SUPPORTING PETITIONERS**

Pursuant to Federal Rule of Appellate Procedure 29(a), CVR Energy, Inc. (“CVR”) moves for leave to file a brief as amicus curiae supporting petitioners. Respondent Environmental Protection Agency has consented to the filing of the brief, as have petitioners American Refining Group, American Fuel & Petrochemical Manufacturers, Monroe Energy, LLC, Valero Energy Corp., Alon Refining Krotz Springs, Inc., American Refining Group, Inc., Calumet Specialty Products Partners, L.P., Ergon-West Virginia, Inc., Hunt Refining Company, Lion



Oil Company, Placid Refining Company, U.S. Oil & Refining Co., and Wyoming Refining Company, and intervenor E.I. du Pont de Nemours and Company.

Intervenors Americans for Clean Energy, Biotechnology Innovation Organization, Growth Energy, National Corn Growers Association, National Sorghum Producers, and Renewable Fuels Association do not consent to this motion. Petitioner American Petroleum Institute, intervenor National Biodiesel Board, and intervenors have stated that they oppose this motion.

CVR is engaged in refining and fertilizer manufacturing through its ownership in CVR Refining, LP, which owns refineries in Kansas and Oklahoma, and its ownership in CVR Partners, LP, which owns fertilizer manufacturing plants in Kansas and Illinois. This case involves a challenge to EPA's implementation of the Renewable Fuel Standard Program. Because of its ownership of refineries that must comply with the RFS regulations and fertilizer plants that supply critical products to renewable fuel producers, CVR has a strong interest in the resolution of this case.

CVR seeks leave to file a brief in support of certain petitioners' arguments that EPA was required to determine whether the definition of "obligated party" should include blenders. CVR's interests are not adequately represented by the petitioners because no petitioner has brought to the Court's attention that (1) the

root cause of the market manipulation, speculation, and fraud in the credit trading program is EPA's departure from Section 211(o)(5) of the Clean Air Act, 42 U.S.C. § 7545(o)(B), which precludes unobligated parties from generating, buying and selling RINs, or (2) the unique harm suffered by CVR as an owner of regulated refineries and fertilizer manufacturing plants, both of which will be adversely affected by the agency's failure to close the blender loophole.

While petitioners argue in their opening brief that leaving blenders unobligated has caused the dysfunction in the RIN market, they did not identify for the Court the root cause of the market dysfunction, which was EPA's departure from Section 7545(o)(5) in its implementing regulations. The statute required EPA to develop regulations for the generation of credits only by parties that over-comply—in other words, parties that are subject to the regulations and that blend renewable fuel in excess of their obligation—and for the sale of credits only to parties for purposes of compliance.

CVR's interests are not represented by petitioners because they did not present this argument to the Court. CVR believes that this brief will assist the Court in understanding the root cause of the market manipulation and fraud in the RIN market and the agency's need to use its general waiver authority to reduce the statutory volumes. CVR is differently situated from the individual petitioners

because of its ownership interest in fertilizer manufacturing plants, which benefit from the production of renewable fuel and are harmed by the agency's use of its statutory waiver authority. With the possible exception of Valero Energy Corporation, no other petitioner that supports changing the definition of "obligated party" to include blenders is harmed by the agency's use of its statutory waiver authority. While Valero owns renewable fuel production facilities, because of its size, it has access to capital and markets that CVR does not. CVR is also not represented by the American Fuel & Petrochemical Manufacturers because AFPM represents the refining industry as a whole, including large, vertically integrated refiners that are also members of the American Petroleum Institute, which opposes changing the definition of "obligated party" to include blenders in favor of broader reforms to the RFS regime.

CVR has attempted to coordinate with other potential amici, but so far as CVR is aware, no other amicus has interests similar to its own.

Respectfully Submitted,

DATED: September 15, 2016

s/ Lee M. Smithyman

Lee M. Smithyman

Smithyman & Zakoura, Chartered

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**CERTIFICATE AS TO PARTIES, RULINGS, AND RELATED CASES**

**A. Parties, Intervenor, and Amici.** Except for amicus CVR Energy, Inc., all parties, intervenors, and amici known to amicus are identified in the Obligated Party Petitioners' Opening Brief.

**B. Rulings Under Review.** Reference to the ruling under review appears in the Obligated Party Petitioners' Opening Brief.

**C. Related Cases.** All related cases known to amicus are identified in the Obligated Party Petitioners' Opening Brief.

**CORPORATE DISCLOSURE STATEMENT**

Pursuant to D.C. Circuit Rule 26.1, CVR Energy, Inc., discloses that Icahn Enterprises, L.P., a publicly held company, holds a greater than 10% ownership interest in it.

**CERTIFICATE OF SERVICE**

I certify that on September 15, 2016, I electronically filed the foregoing motion with the Clerk of Court for the United States Court of Appeals for the District of Columbia Circuit by using the CM/ECF system. I further certify that all participants in the case are registered CM/ECF users and that service will be accomplished by the CM/ECF system.

s/ Lee M. Smithyman

Lee M. Smithyman



January 28, 2014

The Honorable Gina McCarthy  
Administrator, Environmental Protection Agency  
Air and Radiation Docket and Information Center  
Mailcode: 2822T  
1200 Pennsylvania Avenue NW  
Washington, DC 20460

**Docket ID No. EPA-HQ-OAR-2013-0479**

Dear Administrator McCarthy:

**I. Introduction**

The Biotechnology Industry Organization ("BIO") is pleased to have the opportunity today to comment on the U.S. Environmental Protection Agency's ("EPA") Proposed Rule on the 2014 Standards for the Renewable Fuel Standard (RFS) Program<sup>1</sup> ("the proposed rule") and the renewable volume obligations (RVO) for biofuels in 2014.

BIO is the world's largest trade association representing biotechnology companies, academic institutions, state biotechnology centers and related organizations across the United States and in more than 30 other nations. BIO members are involved in the research and development of innovative healthcare, agricultural, industrial and environmental biotechnology products.

BIO represents nearly 90 companies leading the development of new technologies for producing conventional and advanced biofuels. Through the application of industrial biotechnology BIO members are improving conventional biofuel processes, enabling advanced and cellulosic biofuel production technologies and speeding development of new purpose grown energy crops. Our membership includes four companies EPA cites in its proposed rule as producing commercial gallons of cellulosic biofuels in 2014<sup>2</sup>.

**a. Biofuels are lowering fuel costs, reducing dependence on foreign oil, creating jobs, and providing environmental benefits.**

Congress established the RFS to encourage the use of conventional biofuels and the development of advanced and cellulosic biofuels in order to reduce our reliance on the rising cost and price volatility of oil. The RFS has already provided real benefits to America's economy by reducing dependence on foreign oil, creating jobs, and providing environmental benefits.

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<sup>1</sup> 2014 Standards for the Renewable Fuel Standard Program, 78 Fed. Reg. 230, 71732 (proposed Nov. 29, 2013) (to be codified at 40 C.F.R. pt. 80) (available at: <http://www.gpo.gov/fdsys/pkg/FR-2013-11-29/pdf/2013-28155.pdf>) [hereinafter *The Proposed Rule*].

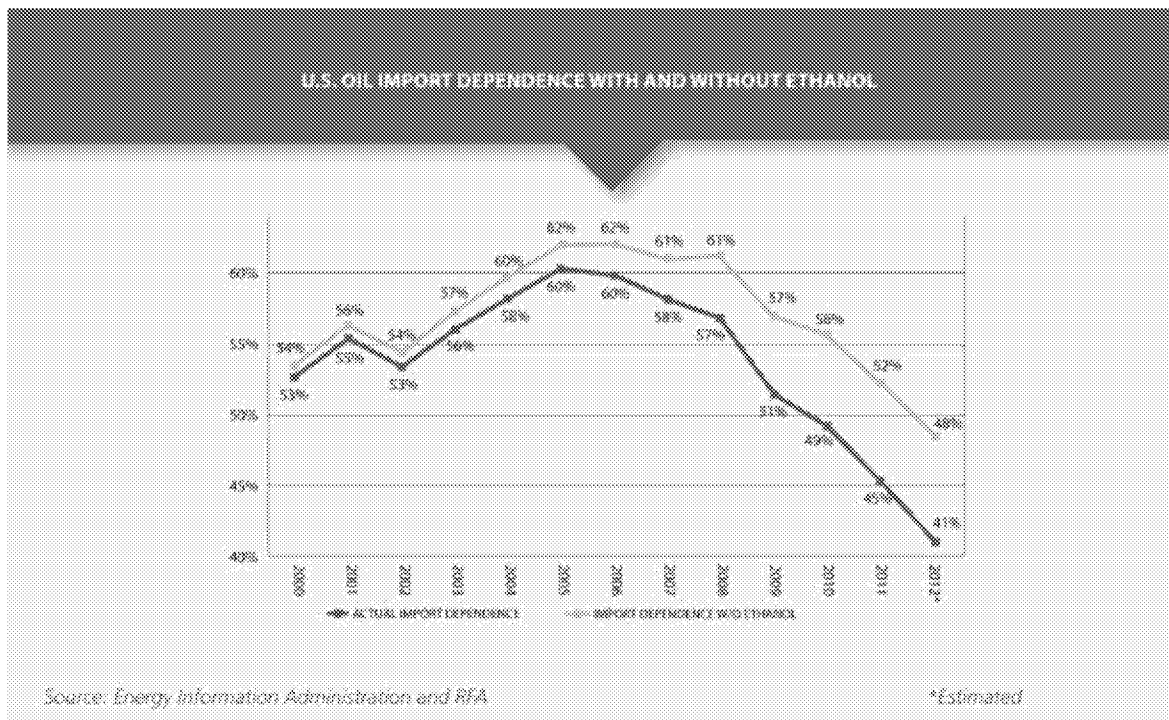
<sup>2</sup> *Visible Progress in Biorefinery Commercialization, Industrial Biotech Companies Show Progress in Commercialization*, Biotechnology Industry Organization, Jun. 15, 2012, available at: <http://www.bio.org/articles/visible-progress-biorefinery-commercialization> (Appendix I)





The RFS has contributed to improved energy security. Ethanol and biodiesel already represent 10 percent of the nation's motor fuel supply. This means motor fuel that would have been made from oil, most likely from foreign sources, is now being produced in the U.S. at facilities typically in rural areas, providing high-skilled jobs and keeping revenues in the country. As noted by the U.S. Energy Information Administration (EIA), U.S. dependence on imported oil has declined since peaking in 2005, in part because of the increased use of biofuels<sup>3</sup> as mandated by the first RFS passed in 2005's Energy Policy Act (P.L. 109-58).

Since 2000, increased use of biofuels has reduced dependence on foreign oil by 25 percent. While the decline in oil imports from 60 percent to 41 percent can be partially attributed to increased domestic production and more efficient vehicles, without ethanol, import dependence would have been 48 percent.<sup>4</sup>



Without the RFS, U.S. dependence on imported oil would be higher, despite increases in domestic oil production and falling demand. While there is much discussion of energy independence in "North America," since we get much of our imported oil from Canada, we continue to send more than \$1.3 billion outside our borders every day for oil. Every barrel of oil we import, even from our neighbors to the north, adds to our growing deficit and to our energy insecurity.

<sup>3</sup> Energy Information Administration, *How dependent are we on foreign oil*, at [http://www.eia.gov/energy\\_in\\_brief/article/foreign\\_oil\\_dependence.cfm](http://www.eia.gov/energy_in_brief/article/foreign_oil_dependence.cfm) (Appendix II)

<sup>4</sup> Renewable Fuels Association, *Ethanol Facts: Energy Security*, at <http://www.ethanolrfa.org/pages/ethanol-facts-energy-security> (Appendix III)



The problem is that we are overly reliant on oil as the sole source of our transportation fuel. Consumers are captive to rapid spikes in prices at the pump when an oil refinery shuts down for any reason, whether a natural disaster or a planned retooling – as occurred last spring in Minnesota just ahead of the Memorial Day weekend.<sup>5</sup> To be able to control prices at the pump and balance our trade deficits, we must continue to build a domestic biofuel industry and make changes to our fuel supply infrastructure to enable greater use and flexibility in fuel supplies.

Since 2000, the RFS2 has helped reduce dependence on foreign oil by 25 percent.<sup>6</sup> In 2011, biofuels produced and consumed in the U.S. reduced oil imports by more than 200 million barrels, keeping \$22 billion here in the U.S.<sup>7</sup> Biofuels and new renewable technologies being spurred by the RFS are providing solutions to our energy challenges. This saves the average American about \$1200 a year in fuel costs because ethanol is a cheaper blending alternative than other petroleum-based products. As has been demonstrated in a number of academic and independent research studies, biofuels reduce the overall price of gasoline and save American consumers money at the pump.<sup>8,9</sup> Looking ahead, according to a study from researchers at the DOE's Oak Ridge National Laboratory, the RFS is helping to hold down motor fuel prices. The study found that increased use of biofuels will reduce motor fuel prices by 3 percent in 2015 and approximately 7 percent in 2022.<sup>10</sup>

The RFS is also working to boost the U.S. economy. According to researchers at the DOE's Oak Ridge National Laboratory, the RFS is producing positive economic effects for the U.S. and the benefits will increase by 2022 when the RFS reaches its goal of 36 billion gallons of renewable fuel. According to the study, the RFS will contribute a 0.8 percent increase to the gross domestic product by 2022.<sup>11</sup>

It has driven the development of high skilled well-paying jobs in rural America. Biofuel production under the RFS has led to the employment of 380,000 Americans, and is expected to produce up to an additional 800,000 employment opportunities by 2022.<sup>12</sup> It is

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<sup>5</sup> Gary Strauss, "Refinery woes cause nationwide gas price spike," Detroit Free Press, May 17, 2013. <http://www.freep.com/article/20130517/BUSINESS07/305170039/Refinery-woes-cause-nationwide-gas-price-spike>. (Appendix IV)

<sup>6</sup> Renewable Fuels Association.

<sup>7</sup> *Global economic effects of US biofuel policy and the potential contribution from advanced biofuels*, at <http://www.future-science.com/doi/abs/10.4155/bfs.12.60> (Appendix V)

<sup>8</sup> *Impact of Ethanol Production on the U.S. and Regional Gasoline Markets: An Update to 2012*, at <http://www.card.iastate.edu/publications/synopsis.aspx?id=1166> (Appendix VI)

<sup>9</sup> *The Impact of Ethanol Production on the U.S. Gasoline Market*, at [http://www.ethanol.org/pdf/contentmgmt/The\\_Impact\\_of\\_Ethanol\\_Production\\_on\\_the\\_US\\_Gasoline\\_Market.pdf](http://www.ethanol.org/pdf/contentmgmt/The_Impact_of_Ethanol_Production_on_the_US_Gasoline_Market.pdf) (Appendix VII)

<sup>10</sup> ScienceDaily, *Biofuels Can Provide Viable, Sustainable Solution to Reducing Petroleum Dependence, Study Shows*, February 11, 2009, at <http://www.sciencedaily.com/releases/2009/02/090210133920.htm> (Appendix VIII)

<sup>11</sup> Biofuels, *Global economic effect of US biofuel policy and the potential contribution from advanced biofuels*, November 2012, Vol. 3, No. 6, Pages 703-723, at <http://www.future-science.com/doi/abs/10.4155/bfs.12.60> (Appendix V)

<sup>12</sup> Bio Economic research Associates, "U.S. Economic Impact of Advanced Biofuels Production: Perspectives to 2030." Washington, DC: February 2009



crucial we maintain the RFS in order to ensure these economic and energy security benefits are fully realized.

Environmentally, the RFS represents the nation's only Congressionally authorized greenhouse gas reduction program. Production under the RFS is subject to strict lifecycle GHG reduction requirements of up to 60 percent compared to traditional petroleum-derived fuel. As a result, in 2012, using renewable fuel slashed greenhouse gas emissions by 33.4 million metric tons.<sup>13</sup> EPA has estimated that renewable fuels use under the RFS will reduce greenhouse gas emissions by 138 million metric tons per year when the program is fully implemented in 2022.<sup>14</sup> The reduction would be equivalent to taking about 27 million vehicles off the road.

In practice, greenhouse gas reductions under the RFS are likely to be even more significant. The greenhouse gas emissions of conventional fuel in 2012 were lower than that predicted by the EPA for 2022.<sup>15</sup> In addition, many cellulosic and other advanced biofuel pathways approved by EPA already substantially exceed the minimum GHG reductions required by the law. For example, the INEOS Bio process, which is being commercialized at a new biorefinery in Vero Beach, Florida, reduces greenhouse gas emissions up to 91% when running residual municipal solid waste as a feedstock. When the process utilizes food and yard waste, the process results in GHG emissions savings of 109% — a net carbon savings. This is because the process also generates electricity that would otherwise come from fossil energy and because the wastes would emit methane if otherwise landfilled. Future feedstock and conversion technology improvements will drive GHG reductions even further, with many pathways likely to be net carbon sinks representing greater than 100% reductions relative to the petroleum baseline.

In contrast, lifecycle GHG emissions for petroleum are increasing with time. "Well-to-Wheel GHG emissions" of gasoline produced from Canadian tar sands, for example, emit 14% to 20% more GHGs than the weighted average of transportation fuels sold or distributed domestically. Excluding the final use combustion, "Well-to-Tank" GHG emissions of oil sands crudes are on average 70% to 110% higher than for the average domestic transportation fuel.<sup>16</sup> And crude oil from Canada has grown to proportionally larger percentage of the U.S. transportation fuel mix since 2005 – the EPA baseline year. The United States is the destination for 99 percent of Canada's oil. About half of Canada's exports come from oil sands, and since 98 percent of Canada's reserves are in oil sands,

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<sup>13</sup> Renewable Fuels Association, "Battling for the Barrel: 2013 Ethanol Industry Outlook." Washington, DC: February 2013, p.18.

<sup>14</sup> US EPA, "Renewable Fuel Standard Program (RFS2) Regulatory Impact Analysis." Washington, DC: EPA-420-R-10-006, February 2010.

<sup>15</sup> Steffen Mueller, John Kwik. New Report: 2012 Corn Ethanol - Emerging Plant Energy and Environmental Technologies, [http://www.erc.uic.edu/PDF/mueller/2012\\_corn\\_ethanol\\_draft4\\_10\\_2013.pdf](http://www.erc.uic.edu/PDF/mueller/2012_corn_ethanol_draft4_10_2013.pdf) (Appendix IX)

<sup>16</sup> Lattanzio, R. "Canadian Oil Sands: Life-Cycle Assessments of Greenhouse Gas Emissions (7-5700/R42537)." Washington: Congressional Research Service, March 15, 2013. <http://www.fas.org/spp/crs/misc/R42537.pdf> (Appendix X)



that percentage is expected to increase.<sup>17</sup> While U.S. oil imports overall have fallen, U.S. oil imports of Canadian oil have increased.<sup>18</sup>

The GHG reductions produced by the RFS are a vital part of the nation's effort to combat climate change. It is crucial we maintain the RFS to achieve these environmental gains.

**b. Advanced and cellulosic biofuels have made commercial progress and are capable of rapid scale up. They require capital investment that depends on a viable market for their product.**

The RFS is the single most important federal policy driving investment and commercialization of advanced and cellulosic biofuels. This policy is not only driving the development of liquid fuels, but more efficient biotechnology products and value added products from the biorefinery process such as renewable chemicals. Due in large part to the driving force of the RFS, the U.S. is the global leader in the development and deployment of next generation biofuels.

To date, these companies have invested more than \$5.79 billion in private capital here in the United States in building the advanced and cellulosic biofuels industry<sup>19</sup>. This investment has been matched with \$2.1 billion in federal or state grants and loans. As a result, 28 out of 50 states have at least one existing or planned biorefinery, totaling 77 facilities across the country. This includes the five cellulosic biofuel facilities EPA projects to produce commercial gallons of cellulosic biofuels in 2014 and an increasing number of renewable chemical facilities.

**c. Inconsistent regulatory policy undercuts investment and impedes progress in advanced biofuels.**

Our member companies are deeply concerned the proposed rule is a fundamental change in direction and sets a troubling precedent for the RFS in 2014 and beyond. By fundamentally changing the agency's well-established methodology for setting RVOs, this proposal creates an inconsistent regulatory climate that will undercut investment and undermine the development of advanced and cellulosic biofuels just as they are set to produce millions of commercial gallons and launch a rapid scale up. Even more damaging, the new methodology signals to biofuel producers and their investors there will be little to no market for advanced and cellulosic biofuels poised to come onto the market in the near future.

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<sup>17</sup> U.S. Energy Information Administration, Country Analysis: Canada.  
<http://www.eia.gov/countries/cab.cfm?fips=CA> (Appendix XI)

<sup>18</sup> U.S. Energy Information Administration, "Canada Week: Canada is the leading supplier of crude oil to the United States." Today in Energy, November 28, 2012. <http://www.eia.gov/todayinenergy/detail.cfm?id=8950> (Appendix XII)

<sup>19</sup> *The Renewable Fuel Standard, Timeline of a Successful Policy*, Biotechnology Industry Organization, Jun. 29, 2012, available at: <http://www.bio.org/articles/renewable-fuel-standard-timeline-successful-policy> (Appendix XIII)



**i. Most damaging inconsistency is in assessment of “available supply.”**

In finalizing the 2013 RFS<sup>20</sup>, EPA determined that biofuel producers were capable of supplying 16.55 billion gallons of renewable fuel to the nation’s fuel supply. Despite continued rapid deployment of conventional and advanced biofuels since issuance of the 2013 final rule, the Agency’s 2014 proposal reduces the total renewable fuel requirement down to 15.21 billion gallons. In the short term, this means over 1.3 billion gallons of conventional biofuel production capacity will be shut down, potentially closing 10 to 20 plants, stranding \$4 billion of investment, and resulting in direct job losses for roughly 1,000 employees<sup>21</sup>. Longer term, this proposed rule signals to the companies building up the advanced and cellulosic biofuels industry and their investors that the RFS, which has been the primary market driver in the development of this next generation of fuels, can no longer be counted on to ensure a market for new production. Instead of encouraging the obligated parties – who have control of fuel distribution – to invest in the infrastructure to offer more options to consumers to use biofuels, this proposed rule validates the mythical “blend wall.” It rewards obligated parties for the failure to prepare for compliance and eviscerates the program’s ability to drive adoption of the next generation of biofuels. The proposal signals to the developers of advanced and cellulosic biofuels that there is no reliable expectation of a market for these fuels, and to their investors that there is little assurance of a return on investment.

**II. EPA Does Not Have Authority to Make Proposed Reductions to 2014 Advanced and Total Renewable Fuel Volume Obligations**

EPA does not have the authority to make its proposed reductions to the statutory volume obligations for total renewable and advanced biofuels under the RFS using its general and cellulosic waiver authorities, as made clear by the Agency’s own past interpretation and application of its authority under those waiver provisions. In addition, a court would not likely uphold the 2014 RFS rule as proposed, given that EPA’s proposed interpretation of its authority under the general and cellulosic waiver authorities exceeds the bounds of appropriate deference under the law. For these reasons, along with those presented in the other sections of these comments, we respectfully urge the EPA to reconsider its proposed reductions and maintain the statutory RFS 2014 renewable volume obligations (RVOs) for total renewable and advanced biofuels.

**a. EPA’s Proposed Reductions to Advanced and Total Renewable Fuel**

As EPA points out in the proposed rule, “[w]hen [it] lower[s] the applicable volume of cellulosic biofuel below the volume specified in [Clean Air Act, Section] 211(o)(2)(B)(i)(III), [it] also ha[s] the authority to reduce the applicable volumes of

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<sup>20</sup> Regulations of Fuels and Fuel Additives: 2013 Renewable Fuel Standards, 78 Fed. Reg. 158, 49794 (finalized Aug. 15, 2013) (to be codified at 40 C.F.R. pt. 80) (available at: <http://www.gpo.gov/fdsys/pkg/FR-2013-08-15/pdf/2013-19557.pdf>).

<sup>21</sup> Parker, Mario and Kassai, Lucia. “Ethanol mills face closures as Obama cuts target.” St. Louis Post-Dispatch. 4 Dec. 2013: available at: [http://www.stltoday.com/business/local/ethanol-mills-face-closures-as-obama-cuts-target/article\\_b3b2b6a2-2edc-5506-bb8c-42bf7bab93d2.html](http://www.stltoday.com/business/local/ethanol-mills-face-closures-as-obama-cuts-target/article_b3b2b6a2-2edc-5506-bb8c-42bf7bab93d2.html) (Appendix XIV)



advanced biofuel and total renewable fuel by the same or a lesser amount.” This is generally referred to as EPA’s cellulosic waiver authority. EPA may “also reduce the applicable volumes of advanced biofuel or total renewable fuel under the general waiver authority provided at CAA [Section] 211(o)(7)(A) under *certain conditions*”<sup>22</sup> (emphasis added). This is generally referred to as EPA’s general waiver authority.<sup>23</sup> Under the general waiver authority, EPA may reduce the applicable volumes (1) “based on a determination by the Administrator, after public notice and opportunity for comment, that implementation of the requirement would severely harm the economy or environment of a State, a region, or the United States;”<sup>24</sup> or (2) “based on a determination by the Administrator, after public notice and opportunity for comment, that there is an *inadequate domestic supply*”<sup>25</sup> (emphasis added).

In the proposed rule, EPA proposes to utilize its cellulosic waiver authority to reduce volumes of advanced and total renewable fuels. The Agency explains that, while under the cellulosic waiver authority, “[t]he statute does not provide any explicit criteria that must be met or factors that must be considered when making a determination as to whether and to what degree to reduce the advanced biofuel and total renewable fuel applicable volumes...EPA must provide a reasoned explanation for any decision to reduce [those] volume requirements.”<sup>26</sup>

In this regard, the Agency refers to the same justification as for its use of its general waiver authority to make further reductions to the total renewable fuel obligation – based on its overly broad interpretation of “inadequate domestic supply” in the proposed rule. EPA asserts that the term “inadequate domestic supply” is an “ambiguous provision” that is “reasonably and best interpreted to encompass the full range of constraints that could result in an inadequate supply of renewable fuel to the ultimate consumers, including fuel infrastructure and other constraints...as well as factors affecting the ability to distribute, blend, dispense and consume those renewable fuels.”<sup>27</sup>

For the reasons outlined below, BIO strongly believes that such an interpretation and approach lacks an adequate legal basis and should be rejected by the Agency in its final rule.

### **III. EPA Does Not Have the Authority to Make Reductions to Total Renewable Fuel Volume Obligations Using its General Waiver Authority Under the RFS for the Reasons Cited in Its Proposed Rule**

Generally, a court will evaluate whether it should defer to an agency’s interpretation of its authority under a law in two steps. Under the first step, a court will ask “whether Congress has directly spoken to the precise question at issue. If the intent of Congress is clear, that is the end of the matter” because a court and an agency must defer to the clear

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<sup>22</sup> Environmental Protection Agency, *2014 Standards for the Renewable Fuel Standard Program; Proposed Rule*, 78 Fed. Reg. 71732, 71735 (2013) (to be codified at 40 C.F.R. pt.80 (proposed Nov. 29, 2013) [hereinafter *The 2014 RFS Proposed Rule*].

<sup>23</sup> *Id.*

<sup>24</sup> 42 U.S.C. 7545(o)(7)(A)(i).

<sup>25</sup> 42 U.S.C. 7545(o)(7)(A)(ii).

<sup>26</sup> *The 2014 RFS Proposed Rule* at 71755.

<sup>27</sup> *Id.*



intent of Congress.<sup>28</sup> To determine whether a statute yields clear Congressional intent, a court will look to a statute's "text, legislative history, structure and purpose,"<sup>29</sup> and often will look to whether Congress expressly included or omitted words or phrases in one part of a law but not in others.<sup>30</sup>

Under the second step, if a court determines that a "statute is silent or ambiguous with respect to the specific issue, the question for the court is whether the agency's answer is based on a permissible construction of the statute."<sup>31</sup>

As discussed in great detail below, BIO strongly believes that a court would find that EPA does not have authority to make its proposed reductions to the 2014 total renewable fuel RVOs under its general waiver authority, because the term "inadequate domestic supply" in the text of CAA Section 211(o)(7)(A)(ii) expresses clear Congressional intent that the Agency only make reductions to RVOs when it determines there will be inadequate volumes of neat renewable fuels available to obligated parties. Since the intent of Congress in this regard is clear, and therefore the term "inadequate domestic supply" is not ambiguous as EPA asserts in the proposed rule, we are confident that a court would find this narrow and plain interpretation to be the end of the matter. However, even if the term were reasonably viewed as ambiguous, as EPA asserts, the Agency's interpretation of that term is not based on a permissible construction of the statute, as also explained below.

In summary, EPA's proposed reductions to the 2014 total renewable fuel obligations under its general waiver authority defy its own past guidance for evaluating potential reductions under that waiver provision. Based on that past guidance, EPA should find that the term "inadequate domestic supply" is not ambiguous and that it clearly refers to the supply of neat renewable fuel available to obligated parties under the RFS. It plainly does not refer to the "supply of renewable fuel to the *ultimate consumers*, including fuel infrastructure and other constraints...[or] factors affecting the ability to distribute, blend, dispense and consume those renewable fuels," as EPA now asserts in the proposed rule (emphasis added). In addition, even if the Agency could reasonably reinterpret this term so broadly, EPA should find that any lack of sufficient supply of ethanol to ultimate consumers is not the result of the RFS *itself*, but rather the ongoing dilatory tactics of many in the refining sector and among other stakeholders – and thus, cannot serve as an adequate legal basis upon which to utilize its waiver authority.

***a. EPA Should Follow Past Precedent and Find that the Term "Inadequate Domestic Supply" Is Not Ambiguous and Refers to Adequate Volumes of Neat Renewable Fuel Available to Obligated Parties***

In its proposed rule, EPA asserts that it has the authority to interpret the term "inadequate domestic supply" broadly to include (1) blended, not neat renewable fuel; (2) the various parties, including the ultimate consumer, that would use blended renewable

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<sup>28</sup> *Chevron U.S.A., Inc. v. Natural Resources Defense Council, Inc.*, 467 U.S. 837, 842-43 (1984).

<sup>29</sup> *Arizona Public Service Co. v. Environmental Protection Agency*, 211 F.3d 1280, 1287 (D.C. Cir. 2000).

<sup>30</sup> See *Whitman v. American Trucking Associations*, 531 U.S. 457 (2001) (holding that EPA may not consider compliance costs under one provision of the Clean Air Act where other provisions of the Act explicitly stated them as permissible considerations).

<sup>31</sup> *Chevron*, at 843.



fuels; and, (3) consideration of factors relevant in determining the adequacy of the supply, including "consideration of distribution capacity."<sup>32</sup> Respectfully, we believe EPA is wrong on all three of these points, and is ignoring the clear meaning of "inadequate domestic supply" as solely referring to the supply of neat renewable fuel available to obligated parties, without consideration of additional factors such as distribution capacity.

EPA asserts in its proposed rule that it "has not previously interpreted or applied the waiver provision in CAA section 211(o)(7)(A)(ii) related to 'inadequate domestic supply.'"<sup>33</sup> This assertion fails to provide the full picture of the Agency's history in approaching its waiver authority under the RFS. For instance, the Agency, in its 2008 decision "Regarding the State of Texas Request for a Waiver of a Portion of the Renewable Fuel Standard" (the "Texas Waiver Decision"), made it clear that, although it was not specifically interpreting the inadequate domestic supply portion of the waiver provision in CAA section 211(o)(7)(A)(i) (the general waiver authority provision), "the guidance discussed in [the Texas Waiver Decision] would apply in general terms to those requests as well"<sup>34</sup> – meaning, all requests to "grant a waiver based on severe harm to the environment of a State, a region, or the United States, or *inadequate domestic supply*"<sup>35</sup> (emphasis added).

Under this guidance, which was reaffirmed in EPA's August 2012 "Notice of Decision Regarding Requests for a Waiver of the Renewable Fuel Standard"<sup>36</sup> (the "2012 RFS Waiver Decision"), EPA found that Congress intended its general waiver authority to be interpreted narrowly based on the plain meaning of the text on its face without reading into it or enhancing it based on additional language or words used in other parts of the CAA, including other parts of the RFS.<sup>37</sup> It emphasized the fact that Congress intended for the RFS to increase renewable fuel volumes and, as such, the Agency must interpret its authority to require a high bar before waiving any required RFS volumes.<sup>38</sup> Accordingly, EPA rejected Texas' assertion that the Agency should reduce RFS volumes if it found that the RFS *contributed to* severe economic harm. Instead, based on the plain meaning of the text, EPA found that it would need to find that "implementation of the RFS program *itself* must be the cause of the severe harm."<sup>39</sup>

In explaining this conclusion, EPA noted that it had considered "numerous examples in section 211 and other sections of the Clean Air Act where Congress authorized EPA action based on the contribution made by a factor or activity and worded the statute to clearly

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<sup>32</sup> See *The 2014 RFS Proposed Rule* at 71755-56 (explaining the ways in which EPA views the term "inadequate domestic supply" contained in CAA Section 211(o)(7)(A)(ii) as sufficiently ambiguous to interpret its authority broadly under that provision).

<sup>33</sup> *Id.* at 71755.

<sup>34</sup> Environmental Protection Agency, *Notice of Decision Regarding the State of Texas Request for a Waiver of a Portion of the Renewable Fuel Standard*, 73 Fed. Reg. 47168, 47184 (published Aug. 13, 2008) [hereinafter *The 2008 Waiver Decision*].

<sup>35</sup> 42 U.S.C. 7545 211(o)(7)(A)(i) and (ii).

<sup>36</sup> Environmental Protection Agency, *Notice of Decision Regarding Requests for a Waiver of the Renewable Fuel Standard*, 77 Fed. Reg. 70752, 70755 (published Nov. 27, 2012) [hereinafter *The 2012 RFS Waiver Decision*].

<sup>37</sup> See *The 2008 Waiver Decision* at 47171 (refusing to interpret its general waiver authority under CAA Section 211(o)(7)(A)(i) to include consideration of instances when the RFS would "contribute to" severe economic harm and finding clear Congressional intent that EPA not use such consideration where it had omitted the phrase in that section of the Clean Air Act while including it in others).

<sup>38</sup> *Id.*

<sup>39</sup> *Id.*





indicate this intention.”<sup>40</sup> The Agency concluded that “Congress did not use such language in this [general] waiver provision, and *the omission of any reference to contribution or similar terms in section 211(o)(7)(A) indicates Congressional intent to limit the availability of a waiver to situations where implementation of the RFS program itself would severely harm the economy*”<sup>41</sup> (emphasis added).

Following its own guidance on reasonable interpretation of the general waiver authority, EPA should, as an initial matter, easily conclude based on the plain text of the statute that the term “supply” refers to neat renewable fuel products only. In its proposed rule, however, EPA argues that the “inadequate domestic supply” term “does not specify what product is at issue (for example, neat renewable fuel or blended renewable fuel with transportation fuel),” and for that reason EPA is entitled to read it broadly to refer to blended renewable fuel with transportation fuel.<sup>42</sup> This reading is inconsistent with EPA’s guidance to interpret its authority under the general waiver provision narrowly based on the plain text of the provision.

Taking the text of the provision on its face, it is very clear that the term “supply” in CAA Section 211(o)(7)(A)(ii) refers back to the language of CAA Section 211(o)(7)(A), “the national quantity of renewable fuel required under paragraph (2).” The “national quantity of renewable fuel required under paragraph (2)” clearly references the volumes of renewable fuels contained in CAA Section 211(o)(2)(B). CAA Section 211(o)(1)(J) defines the term “renewable fuel” to mean “fuel that is produced from renewable biomass and that is used to replace or reduce the quantity of fossil fuel present in a transportation fuel.” The word “supply” in the phrase “inadequate domestic supply” contained in Section 211(o)(7)(A)(ii) of the general waiver provision clearly refers back to the volumes of renewable fuels contained in CAA Section 211(o)(2)(B), which as defined by CAA Section 211(o)(1)(J) mean volumes of neat, not blended, renewable fuels. In other words, it means the renewable fuels before they are blended with transportation fuel.

This interpretation of the term “supply” to mean neat renewable fuel also is consistent with EPA’s guidance on the meaning of “inadequate domestic supply” found in its March 2010 final RFS rule. In relevant part, EPA wrote in that rule that “[w]e also note that it is ultimately *the availability of qualifying renewable fuel, as determined in part by the number of RINs in the marketplace, that will determine the extent to which EPA should issue a waiver of RFS requirements on the basis of inadequate domestic supply*.” It is in the interest of renewable fuel producers to avoid a situation where a waiver of the EISA volume requirements appears necessary. *EPA encourages renewable fuel producers to generate RINs for all fuel that is made from feedstocks meeting the definition of renewable biomass and that meets the GHG emissions reduction thresholds set out in EISA*”<sup>43</sup> (emphasis added).

Second, following its own guidance, EPA should determine that “inadequate domestic supply” refers to the adequacy of the supply of neat renewable fuel *to obligated parties*, not “ultimate consumers.” Based on Congressional direction, EPA has designated the parties

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<sup>40</sup> *Id.*

<sup>41</sup> *Id.* at 47171.

<sup>42</sup> See *The 2014 RFS Proposed Rule* at 71756.

<sup>43</sup> Environmental Protection Agency, Regulation of Fuels and Fuel Additives: Changes to Renewable Fuel Standard Program; Final Rule, 75 Fed. Reg. 14670, 14698 (2010) (codified at 40 C.F.R. pt. 80) (published March 26, 2010) [hereinafter *The RFSII Final Rule*].



obligated to meet the annual RVOs,<sup>44</sup> and thus EPA should conclude that the provision only applies to those obligated parties – and not “all of the relevant parties,” including the “ultimate consumer,” as it now proposes.<sup>45</sup> Congress designed the RFS to increase the development and commercial production and use of renewable fuels,<sup>46</sup> and directed the Agency to obligate certain parties to use the renewable fuels in order to incentivize this production, for ultimate use by the consumer. Those obligated parties are narrowly drawn and plainly do not include the ultimate consumer.<sup>47</sup> Instead, under the RFS, Congress intended for obligated parties, including refiners and importers of transportation fuel, to be the ones required to use/blend the neat transportation fuel volumes set in the law for ultimate use by consumers. Therefore, EPA should conclude that the adequacy of the supply of neat renewable fuels must be measured in terms of the adequacy of volumes of those fuels to the parties who are obligated under the law to comply with these requirements. Under its 2008 Texas Waiver Decision precedent, EPA should not read the text more broadly to include the ultimate consumer.

Doing so would create an impermissible “asymmetry of incentives” under which EPA would, practically speaking, be imposing obligations on renewable fuels producers and the ultimate consumer that Congress never intended. To date, the only obligation for renewable fuel producers under the RFS has been to produce qualifying renewable fuels. Until now, if they accomplished that task, they knew there would be a market for the biofuels because of the requirement for *obligated parties* (refiners and importers of transportation fuel) to use or blend them.<sup>48</sup> Under the proposed rule, the obligation for renewable fuel producers would now extend, in practical terms, to helping to ensure the use of their fuels by the ultimate consumer. No longer would the obligation to use the renewable fuels lie solely with the obligated parties defined under the statute. This is not the type of broad obligation Congress intended when it directed the Agency to define certain obligated parties, which did not include renewable fuel producers or the ultimate consumer.

A federal court just last year found EPA had created an impermissible “asymmetry in incentives” because the obligated parties would be the ones left to pay for any disconnect between the 2012 cellulosic RVOs set by EPA and the actual expected production volume of those fuels, when it was the renewable fuel producers, and not the obligated parties, that had control over whether or not the requisite cellulosic volumes were actually produced.<sup>49</sup> Just as the court found that the refining sector had no control over whether renewable fuels producers actually produced the requisite volumes of fuels, renewable fuel producers have no control over whether those fuels are blended and consumed by the ultimate consumer. As a result, an interpretation of “inadequate domestic supply” that focuses on supply to

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<sup>44</sup> *The RFSII Final Rule* at 14721-22.

<sup>45</sup> *See The 2014 RFS Proposed Rule* at 71756.

<sup>46</sup> *See The 2014 RFS Proposed Rule* at 71734 (explaining that EPA has been “cognizant that Congress anticipated and intended the RFS program to promote substantial, sustained growth in biofuel production and consumption—beyond the levels that have been achieved to date”).

<sup>47</sup> *The RFSII Final Rule* at 14721-22.

<sup>48</sup> *See* Biotechnology Industry Organization, *The Value Proposition for Cellulosic and Advanced Biofuels Under the Federal Renewable Fuel Standard*, (2001), available at [http://www.bio.org/sites/default/files/201104\\_rfs\\_whitepaper\\_3.pdf](http://www.bio.org/sites/default/files/201104_rfs_whitepaper_3.pdf) (finding that the RFS statute and EPA’s consistent implementation of it provides biofuel producers with the confidence that there will be a market for all qualifying biofuels they can produce). (Appendix XV)

<sup>49</sup> *American Petroleum Institute v. Environmental Protection Agency*, No. 12-1139 at 12 (D.C. Cir. filed Jan. 25, 2013) [hereinafter *API v. EPA*].



consumers would create an inappropriate obligation on renewable fuel producers and consumers under the RFS, as well as a perverse incentive for the Congressionally-obligated parties to continue to drag their collective feet in developing the infrastructure needed for consumers to be adequately supplied with renewable fuels.

Third, following its own guidance, EPA should determine that its authority under the "inadequate domestic supply" part of the general waiver authority provision cannot be supplemented by additional text found in other parts of the CAA, such as "consideration of distribution capacity," "consumption by the ultimate consumer," or the "blend wall."<sup>50</sup> CAA Section 211(o)(7)(a)(ii) allows the EPA Administrator to reduce RFS volumes based on "inadequate domestic supply." As explained above, the straightforward meaning of this provision would allow the Administrator to reduce the statutory RFS volume requirements if she determines an inadequate supply of neat renewable fuel available to obligated parties. EPA's 2008 Texas Waiver Decision precedent cautions against using unrelated text to read into this clear waiver authority. Just as EPA determined that Congress' omission of any reference to the RFS "contributing to" severe economic harm prevented a broad interpretation of that prong of the general waiver authority, EPA should, for the 2014 RFS rule, similarly find that Congress' omission of any reference to "consumption," "distribution capacity" or "blend wall" under the "inadequate domestic supply" prong of that same authority limits its legal authority in this regard. Indeed, as EPA acknowledges in the proposed rule, in other parts of the CAA, Congress explicitly specifies that the Administrator may consider distribution capacity in determining whether to waive fuel volumes.<sup>51</sup> The fact that Congress did not do so with respect to the RFS waiver authority at issue here is telling, and undermines – rather than supports – any EPA reliance on such other considerations.

In sum, EPA's broad interpretation of its waiver authority in the proposed rule under CAA Section 211(o)(7)(A)(ii) is wholly inconsistent with its narrow interpretation of the same authority under Section 211(o)(7)(A)(i).

***b. Even if EPA's Interpretations of Its General Waiver Authority Are Reasonable, It Should Determine that Waiving Volumes of Total Renewable Fuel Is Inappropriate Because Any Inability to Consume Blended Renewable Fuels Is Not due to EPA Implementation of the RFS Itself but Rather the Ongoing Defiance of the Law by Obligated Parties and Other Stakeholders***

As discussed in detail above, BIO strongly believes EPA should follow its past guidance on interpreting potential waivers of statutory RFS RVOs under its general waiver authority narrowly and based on the straightforward meaning of the text. However, even if EPA continues to interpret its authority broadly under CAA Section 211(o)(7)(A)(ii) to include the availability of renewable fuels blended into the transportation fuel supply and the ability of the ultimate consumer to consume them, we believe EPA should determine that it is still inappropriate for it to reduce the 2014 RFS RVOs for total renewable fuels under its general waiver authority because any inadequate supply based on that definition would not result from EPA's implementation of the RFS *itself*. Rather, as EPA suggested in its 2012 RFS Waiver Decision, such inadequate supply would be due to the ongoing defiance

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<sup>50</sup> See *The 2014 RFS Proposed Rule* at 71755-56.

<sup>51</sup> See *The 2014 RFS Proposed Rule* at 71756.



of obligated parties and other stakeholders to take the reasonable and necessary steps to comply with the law.

In the 2012 RFS Waiver Decision, EPA provided analysis and guidance on the "Ethanol Blend Wall." It explained that during the comment period leading up to the 2012 RFS Waiver Decision, "[c]ommenters state that once ethanol in gasoline hits this E10 saturation point, blending additional ethanol into gasoline will not be a viable strategy to comply with RFS-required volumes."<sup>52</sup> EPA responded that:

Ethanol has been the dominant domestic renewable fuel for several years, and during development of the law and regulations stakeholders in the fuel sector reasonably expected that ethanol would play a significant role in fulfilling the RFS volume requirements. As pointed out by commenters, E10 is approaching the point at which it saturates the gasoline market. *As a result, if obligated parties choose to achieve their required RFS volumes using ethanol they should work with their partners in the vehicle and fuel market to overcome any market limitations on increasing the volume of ethanol that is used. Stakeholders in the refining sector have been aware of the E10 blend wall since passage of EISA in December of 2007.*

As the market has approached the E10 blend wall, the ethanol industry has worked to support the introduction of E15 into the market, and domestic auto manufacturers have increased production of vehicles capable of running on even higher ethanol blends. Over ten million flex-fuel vehicles (FFVs) are now in the existing fleet. FFVs currently consume E85 only about 0.4% of the time, but were they to be regularly fueled on E85, such vehicles would be capable of consuming billions of additional gallons of ethanol. *The affected industries have had and continue to have the ability to achieve widespread adoption of E85 through working with partners in the retail and terminal infrastructure sectors to increase the number of stations that offer E85 or other intermediate ethanol blends and improve the pricing structure relative to E10. As noted above, however, other fuel options are available to meet RFS requirements.*<sup>53</sup>

(Emphases added.)

As EPA recognized in the 2012 RFS Waiver Decision, the biofuels industry has done its job to support widespread adoption of higher blends of ethanol. The remaining responsibility to help achieve widespread adoption of those fuels has lied with obligated parties and their partners. In the Agency's own words, they "have had and continue to have the ability to achieve widespread adoption of E85" and higher blends of ethanol. If

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<sup>52</sup> *The 2012 RFS Waiver Decision* at 70772.

<sup>53</sup> *Id.* at 70773.



they had been responsibly planning to comply with their RFS RVO requirements, they would have been taking the necessary steps to do this since passage of EISA in 2007. It is now 2014. The fact is that most obligated parties and other impacted stakeholders have not taken the steps necessary for widespread adoption of higher blends of ethanol. These steps would have made reducing statutory RFS volumes due to E10 blend wall concerns, as the Agency now proposes, unnecessary.

In accordance with its past guidance, EPA should therefore find that waiving volumes of total renewable fuel under its general waiver authority is inappropriate because any "inadequate domestic supply" of that fuel as defined under the proposed rule is not the result of EPA's continued implementation of the RFS *itself*. Rather, the root cause is due to the ongoing defiance by "stakeholders in the refining sector" and "affected industries" who have—despite being aware of the E10 blend wall and their RFS obligations since 2007—actively chosen not to "work with their partners in the vehicle and fuel market to overcome any market limitations on increasing the volume of ethanol that is used," or with their "partners in the retail and terminal infrastructure sectors to increase the number of stations that offer E85 or other intermediate ethanol blends and improve the pricing structure relative to E10."<sup>54</sup>

**c. EPA's Proposal Lacks A Sufficient Legal Basis to Make Reductions to Advanced and Total Renewable Fuel Volume Obligations Using its Cellulosic Waiver Authority Under the RFS**

EPA lacks the authority under the cellulosic waiver authority provision found in CAA Section 211(o)(2)(B)(i)(III) to make its proposed reductions to the 2014 RFS RVOs for advanced and total renewable fuels for the reasons cited in its proposal. In the proposed rule, EPA asserts that, while "[t]he statute does not provide any explicit criteria that must be met or factors that must be considered when making a determination as to whether and to what degree to reduce the advanced biofuel and total renewable fuel applicable volumes...EPA must provide a reasoned explanation for any decision to reduce [those] volume requirements under the cellulosic biofuel waiver authority."<sup>55</sup>

EPA cites similar concerns for its "reasoned explanation" to reduce the advanced and total renewable volumes under its cellulosic waiver authority as it does for its proposed further reductions to the total renewable fuel volumes under its general waiver authority: lack of adequate supply of advanced and total renewable fuels determined based on "limitations in the volume of ethanol that can be practically consumed in motor vehicles considering constraints on the supply of higher ethanol blends to the vehicles that can use them and other limits on ethanol blend levels approved for use in motor vehicles and the volume of non-ethanol renewable fuels that we expect would be reasonably achievable."<sup>56</sup>

Although, as EPA suggests, its cellulosic waiver authority appears to provide the agency with greater discretion than under its general waiver authority, EPA does still need to "provide a reasoned explanation." We believe there are limits to this "reasoned

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<sup>54</sup> See *Id.*

<sup>55</sup> *The 2014 RFS Proposed Rule* at 71755.

<sup>56</sup> *Id.* at 71754.



explanation,” which demand that the Agency not only provide a well-reasoned explanation, but one that comports with EPA’s past practice, interpretation and application, as well as rulings from the courts. EPA’s “reasoned explanation” in this case fails to follow EPA’s own precedent—and a recent court ruling upholding such past practice—of refusing to alter the statutory levels of advanced and total renewable fuels when the Agency determined there would be sufficient expected production volumes of those fuels that could be available to obligated parties. Because of this precedent and the fact that, as demonstrated in other parts of these comments, there will indeed be sufficient supply of neat advanced and total renewable fuel to obligated parties in 2014, EPA lacks a sufficient legal basis to make its proposed reductions to those statutory RVOs under its cellulosic waiver authority.

***d. EPA’s Precedent Supports Maintaining the 2014 RFS RVOs for Total Renewable and Advanced Biofuels***

Until now, EPA has interpreted its authority to reduce volumes of advanced and total renewable biofuel RVOs under its cellulosic waiver authority by focusing on the Agency’s ability under the law to maintain the RFS statutory RVOs for those fuels in spite of any annual reductions to the cellulosic biofuel RVOs, based on the likely availability of neat advanced and total renewable fuels to obligated parties. For instance, recently EPA opted to maintain the 2012 and 2013 RVOs for advanced and total renewable fuels because it determined that there would be sufficient production volumes of qualifying advanced biofuels in those years to make up the reduced amounts of cellulosic biofuels in the same years.<sup>57</sup> It placed a premium on following Congressional intent to implement the RFS in a way that results in the increased production and use of renewable fuels as provided under the law.<sup>58</sup> In other words, although the cellulosic waiver authority provision may require only a “reasoned explanation” for any reductions to advanced and total renewable RVOs pursuant to it, EPA has thus far interpreted its authority under the provision narrowly in such a way to avoid reducing those RVOs given their expected production volumes.

The only difference this year, it appears, is that we are approaching the E10 “blend wall” because obligated parties and other stakeholders have not taken the steps necessary – and which, as EPA pointed out in its 2012 RFS Waiver Decision, they have known to be necessary to comply with their RFS obligations since its passage in 2007—to overcome such limitations. This blend wall factor – which is foreign to the plain language of the RFS statute and thus its consideration is inconsistent with Congressional intent – does not and should not meet the requirements of a “reasoned explanation” justifying any reductions to the advanced and total renewable RVOs.

Since EPA has failed to provide a sufficient “reasoned explanation” for its change in Agency implementation of the statute, and since, as shown throughout these comments,

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<sup>57</sup> See Environmental Protection Agency, *Regulation of Fuels and Fuel Additives: 2012 Renewable Fuel Standards; Final Rule*, 77 Fed. Reg. 1320, 1331-32 (2012) (codified at 40 C.F.R. pt. 80) (published Jan. 9, 2012) [hereinafter *The 2012 RFS Final Rule*]; see also, Environmental Protection Agency, *Regulation of Fuels and Fuel Additives: 2013 Renewable Fuel Standards; Final Rule*, 78 Fed. Reg. 49794, 49824 (2013) (codified at 40 C.F.R. pt. 80) (published Aug. 15, 2013).

<sup>58</sup> *The 2012 RFS Final Rule* at 1331 (“[EPA] believe[s] that it would not be consistent with the energy security and greenhouse gas reduction goals of the [RFS] statute to reduce the applicable volumes of advanced biofuels set forth in the statute if there are sufficient volumes of advanced biofuels available, even if those volumes do not include the amount of cellulosic biofuel that Congress may have desired”).



there likely will be adequate volumes of neat advanced and total renewable fuels to meet the 2014 RFS RVOs, EPA lacks sufficient legal authority under its cellulosic waiver authority provision to make its proposed reductions to those 2014 RVOs.

**e. A Recent Court Ruling Has Upheld EPA's Interpretation of Its Cellulosic Waiver Authority to Allow the Agency to Maintain Total Renewable and Advanced RVOs in Spite of Reducing Cellulosic RVOs, When It Determines Adequate Neat Volumes of the Renewable Fuels Will Be Available to Obligated Parties**

Because the cellulosic waiver authority does not specifically address the scope of agency authority, courts will likely look to the text, structure and purpose of the RFS to determine whether EPA's interpretation of its authority is based on a permissible construction of the statute. The United States Court of Appeals for the District of Columbia Circuit completed this very analysis last year in *API v. EPA*, finding that (1) EPA was correct that Congress intended that the RFS promote production of renewable fuels; and (2) EPA's interpretation that it has the authority to maintain the advanced and total renewable RVOs in spite of any reductions to the cellulosic biofuel RVOs under its cellulosic waiver authority was reasonable, provided that the Agency determines there will be sufficient expected production volumes of those fuels.<sup>59</sup>

The court was not persuaded by API's argument that EPA had failed to justify its decision to maintain the 2012 RVOs for advanced and total renewable fuels when it had reduced the 2012 RVOs for cellulosic biofuels under its cellulosic waiver authority.<sup>60</sup> The court held that the fact that EPA determined that "other sources of advanced biofuels...could make up for the 490 million gallon shortfall in cellulosic biofuel," without providing specific anticipated amounts of those fuels, was a sufficient reasoned explanation for its decision under the cellulosic waiver authority.<sup>61</sup> The court found that EPA's use of historical projected volume production data adequately supported its decision not to reduce the 2012 advanced or total renewable RVOs. In fact, the court held that the Agency did not even need exact quantitative production volume predictions to maintain those RVOs under its cellulosic waiver authority.<sup>62</sup> EPA's determination of the adequacy of the expected production volumes of neat advanced and total renewable fuels available to obligated parties was not only the basis for EPA's "reasoned explanation" not to reduce those 2012 RVOs under its cellulosic waiver authority, but it also was the focus of the court's analysis when holding that "reasoned explanation" to be sufficient under the same authority.

Similarly, even where the court rejected the Agency's arguments, it did so based on a reading of the statute focused on expected production volumes, not other factors. After evaluating the intent and structure of the RFS, the court held that EPA exceeded the scope of its cellulosic waiver authority when it failed to reduce the 2012 RFS cellulosic biofuel RVOs down to the level of actual expected production.<sup>63</sup> EPA had instead used its cellulosic

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<sup>59</sup> *API v. EPA*, No. 12-1139 at 9 and 14 (D.C. Cir. filed Jan. 25, 2013).

<sup>60</sup> *See id.* at 4 and 13.

<sup>61</sup> *Id.* at 14.

<sup>62</sup> *Id.*

<sup>63</sup> *See id.* at 11.



waiver authority to reduce the 2012 RFS cellulosic RVOs to the maximum potential production in order to drive investment and production of cellulosic biofuels. The court found that the text and general structure of the RFS failed to support EPA's interpretation of its authority under the cellulosic waiver provision in a way that would enable the Agency to project cellulosic production volumes by "deliberately indulging a greater risk of overshooting than undershooting" in order to force the development and production of cellulosic biofuel technology.<sup>64</sup> In other words, under its cellulosic waiver authority, the court found that EPA must "take a neutral aim for accuracy" when setting the annual RFS RVOs.<sup>65</sup>

Thus, just as the court held that the RFS and the text of its cellulosic waiver authority provision failed to permit the EPA to overshoot its projections to achieve a policy objective – even one the court acknowledged was supported by Congressional intent – we believe a court would likewise hold that the Agency may not use the same waiver authority to deliberately "undershoot" its projections, as the Agency now proposes, in order to address E10 blend wall concerns. As explained above, we believe that a court would find that Congress' omission of language that would allow EPA to waive RFS volumes based on considerations such as the E10 blend wall, distribution capacity, and the ability of the ultimate consumer to consume them restricts the Agency from doing so.

Given that we demonstrate in other sections of these comments that there will be adequate expected production of advanced and total renewable biofuel volumes to meet those 2014 RVOs, EPA should maintain them in its final 2014 RFS rule consistent with its historical interpretation and application of its cellulosic waiver authority, as recently interpreted by the federal appeals court.

#### **IV. There are Sufficient Supply Options in 2014 to Meet Statutory Advanced and Overall Targets**

The domestic supply of biofuels will be adequate to meet the overall statutory volume of 18.15 billion gallons of renewable fuel, including 3.75 billion gallons of advanced biofuel, in 2014. There are several potential scenarios for producing and using these volumes, with flexibility in the system provided by carryover RINs from 2013 and additional capacity under construction or available for import. EPA should not limit the evaluation of the availability of advanced biofuel volumes to non-ethanol fuels, as it proposes. EPA's ongoing delays in approving advanced and cellulosic biofuel pathways hinder the biofuels industry's ability to generate sufficient RINs to meet the statutory targets.

##### **a. EPA should consider all reasonably anticipated supply of cellulosic biofuel in setting RVO**

In setting the cellulosic RVO, EPA each year conducts a careful survey of the production intentions of commercial-scale cellulosic biofuel producers in the United States. EPA's neutral methodology based on these direct discussions with producers generates the best available projection of what will actually happen in the market during the coming year. EPA should continue to hold discussions with the identified producers to update these

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<sup>64</sup> *Id.*

<sup>65</sup> *Id.*





projections; additionally, EPA should hold discussions with identified foreign cellulosic biofuel producers and with producers awaiting pathway approvals to assess their intentions and include them as appropriate in setting the cellulosic requirement.

If it uses a Monte Carlo analysis, EPA should not use “distribution curves weighted towards the low end of the expected production range for each company to account for the fact that previous projections of cellulosic biofuel production have exceeded actual production.”<sup>66</sup> EPA should make every part of its methodology as neutral as possible. EPA’s methodologies for setting the annual cellulosic and advanced RVOs were upheld by the Court when challenged in *API v EPA*, with the exception of adopting a new goal of promoting growth in the industry.<sup>67</sup> Changes to the methodology risk the agency putting its thumb on the scale to *inhibit* growth of the cellulosic biofuel industry.

EPA has excluded from its 2014 projection all foreign producers of cellulosic biofuel, even though it has identified four facilities that are complete or will be complete during 2014 and that have approved pathways for generating RINs. EPA should work with these companies to complete the registration process for the facilities in an expedient manner, enabling them to contribute volumes to meet the 2014 Renewable Volume Obligations (RVOs). EPA’s exclusion of the facilities from the 2014 RVOs discourages these companies from both completing the registration process and exporting volumes to the U.S. fuel market. The lower RVOs thus become a self-fulfilling prophecy. EPA should include these companies in the same neutral methodology it uses for projecting domestic commercial production.

EPA has also excluded volumes of cellulosic biofuels from pathways that have yet to be approved. This exclusion could chill investment for the identified companies and discourage these companies – and others – from completing the lengthy approval process for pathways and renewable fuel producers. For example, the National Waste & Recycling Association and the Solid Waste Association of North America contend if proposed changes to RFS pathways occur to allow landfill gas dedicated to transportation fuel to qualify as a cellulosic biofuel, there will be substantially greater volume of Cellulosic Biofuel available than is currently proposed.<sup>68</sup> EPA should anticipate the timely approval of pathways and registration processes and include in the 2014 RVO all possible volumes from companies that intend to begin producing during the year.

**b. Ongoing pathway approval delays have reached an average of two years**

EPA has received 56 petitions for new pathway approvals since April 2010. To date, EPA has addressed 24 of the petitions, denying only two of them. Fifteen petitions received

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<sup>66</sup> Fed. Reg., 78(230), Fri. Nov. 29, 2013. P.71750.

<sup>67</sup> USCA, No. 12-1139, Jan. 25, 2013.

<sup>68</sup> Kneiss, S and Skinner, J. National Waste & Recycling Association and Solid Waste Association Comments on Docket ID No. EPA-HQ-OAR-2013-0479. Submitted Jan. 28, 2014 (Appendix LXV)



approval during 2013.<sup>69</sup> Thirty-four petitions are still awaiting completion – either approval or denial – and the average time that those companies have waited now exceeds 19 months.

Companies filing cellulosic biofuel pathway petitions have faced the longest wait times for resolution. Among the six that have been approved, the average wait time was 760 days (more than two years). At least two companies (BP Biofuels and Terrabon, Inc.) discontinued plans for commercial cellulosic projects while awaiting approval. The seven cellulosic companies still awaiting a decision have been waiting an average of 715 days.

Advanced biofuel companies have faced similar delays on pathway petitions. Companies still awaiting a resolution on their petitions have had an average wait of nearly 600 days. Those that have received approval waited, on average, more than 400 days.

For companies awaiting a decision on conventional biofuel pathway petitions, the average wait has been more than 275 days. The average waiting period has dropped from 400 days in the last two months as EPA has received and rapidly approved petitions from biorefineries that are no longer eligible for grandfathering but nevertheless utilize an approved pathway that guarantees a 20 percent reduction in greenhouse gases compared to gasoline's 2007 baseline.

The lengthy wait for approval of new pathways discourages investment in commercial development of advanced and cellulosic biofuels as well as in improvements to existing or development of new pathways for conventional biofuel production. Without a pathway to the fuel market, companies find it difficult to attract investment necessary to complete the construction and startup of new facilities. EPA should work with these companies to expedite the pathway approval process in order to increase the available supply of fuels to meet the RVOs. While setting the 2014 RVOs, EPA should include volumes from companies that can reasonably be expected to receive pathway approval and begin production during 2014. EPA's delay in approving the pathway should not be a reason to exclude a company from EPA's projection for the RVO.

### **c. Advanced biofuel supply capacity**

During the first 11 months of 2013, advanced biofuel producers generated 1.78 billion gallons of biomass-based diesel (BBD)<sup>70</sup> Qualifying BBD can generate between 1.5 and 1.7 RINs per gallon, based on ethanol-equivalent energy content. Given the distribution of BBD gallons produced in 2013 among the various ethanol equivalence values (which results in a multiplier of 1.523), and the total number of associated RINs generated, the industry has made available more than 2.7 billion D4 RINs in 2013.

Advanced biofuel producers have contributed an additional 41.6 million gallons of renewable diesel, qualifying as advanced biofuel, generating more than 70 million advanced biofuel (D5) RINs, through November. The total pool of advanced biofuel (D5) RINs available for 2013 is close to 551 million, with nearly 122 million RINs generated

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<sup>69</sup> Fuel Pathway Petitions: Approved Fuels & Feedstocks, <http://www.epa.gov/otaq/fuels/renewablefuels/new-pathways/rfs2-pathways-determinations.htm> (Appendix XVI)

<sup>70</sup> Fuels and Fuel Additives 2013 EMTS Data, <http://www.epa.gov/otaq/fuels/rfsdata/2013emts.htm>. (Appendix XVII)



domestically. The biofuel industry has made available more than adequate supply to meet the 2013 statutory volume of 2.75 billion gallons of advanced biofuels, and has generated excess RINs that can be applied to 2014.

The availability of carryover RINs provides a significant measure of flexibility in the event of a shortfall in biofuel production or in an individual obligated party's compliance. A recent analysis that attempts to gauge whether sufficient RINs will exist in 2014 for compliance with the statutory RVOs errs in assuming that production will not respond to RIN prices. It also assumes a flat monthly obligation, when in fact the implied obligation changes from month to month as non-renewable fuel production changes.<sup>71</sup>

There appears to be nearly 470 million D4 and D5 2012 vintage RINs available to obligated parties to meet the 2013 RVOs.<sup>72</sup> If these RINs are retired to meet the 2013 obligations, consistent with industry practice in previous years, there could be more than 970 million advanced (D5) and BBD (D4) 2013 vintage RINs available to obligated parties to roll over for compliance in 2014. If EPA sets the final 2014 advanced biofuel obligation at the level of 2.2 billion gallons as proposed, the maximum number of 2013 vintage RINs obligated parties could apply to it would be 440 million, leaving nearly 55 percent of the total available RINs to expire unused. This could rob the system of flexibility for obligated parties in 2014 as well as in 2015, if the obligation were raised in 2015 closer to the statutory volumes.

The Energy Information Administration estimates that the operating capacity for the biodiesel industry is 2.1 billion gallons, which would generate more than 3.2 billion RINs.<sup>73</sup> EPA notes in the proposed rule that the nameplate capacity of all registered biodiesel producers who produced some volumes in 2012 is 2.4 billion gallons, which would generate more than 3.6 billion RINs.<sup>74</sup> Additional advanced biofuel production capacity is expected to come online during 2014, though it is dependent on the timeliness of EPA's approval of pathway petitions, as EPA notes in the proposed rule. EPA's proposal to maintain the 2014 and 2015 BBD obligation at 1.28 billion gallons, while simultaneously lowering the advanced biofuel obligation, subverts the stated goal of supporting growth in biofuels over time.

With more than 550 million advanced (D5) RINs in 2013, and in combination with BBD, the industry has demonstrated that it can generate the 3.75 billion advanced RINs specified for 2014 in the statute, with additional RINs to provide flexibility in the overall RVO and rollover RINs for 2015. EPA should follow past practice – as supported by the USCA decision in January 2013 – to set the overall advanced RVO at the maximum achievable volume. The demonstrated existence of rollover RINs from 2013 can provide sufficient flexibility to obligated parties to meet the statutory RVO.

Conversely, EPA's proposal to reduce the 2014 advanced RVO to 2.2 billion would discourage advanced biofuel producers from completing and registering new facilities,

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<sup>71</sup> Paulson, N. and Meyer, S. "RIN Update: Estimating Potential Stocks for 2014." FarmdocDaily, Sept. 26, 2013. <http://farmdocdaily.illinois.edu/2013/09/rin-update-estimating-potential-stocks-2014.html> (Appendix XVIII)

<sup>72</sup> Fuels and Fuel Additives 2012 EMTS data, <http://www.epa.gov/otaq/fuels/rfsdata/2012emts.htm>. (Appendix XVII)

<sup>73</sup> <http://www.eia.gov/biofuels/biodiesel/production/>. (Appendix XIX)

<sup>74</sup> Fed. Reg., 78(230), Fri. Nov. 29, 2013. P.71762.



resulting in stagnant production capacity for the biofuel industry. The proposed volume obligation falls below the demonstrated RIN generation for BBD (D4) in 2013 of 2.7 billion, which would continue to dampen the use of existing production capacity for biodiesel and renewable diesel. Such a tightening of the market would discourage any new investments in advanced biofuels and undermine planned future growth in domestic production capacity.

**V. EPA has erred in its assumptions that the cost of RINs is unduly burdensome to obligated parties and that the cost is passed through to consumers.**

Renewable Identification Numbers (RINs) are used in the RFS program in the same way as tradable compliance credits in other Clean Air Act programs. They should be a familiar tool to all participants in the program. Like other compliance credits, RINs enforce the central Clean Air Act principle that polluters pay for environmental remediation, even while allowing the costs to be balanced across the polluting industry through trading. The rise in RIN prices during the first half of 2013 came about in part because some obligated parties adopted ineffective strategies for meeting the RFS requirements, relying on other parties to bear the primary burden of compliance. Increased RIN prices do signal the market to increase production and use of biofuels and find efficient ways to solve the so-called blend wall. Increased transparency in the market would allow that mechanism to work more efficiently.

Because RINs enforce the “polluters pay” principle, these compliance costs have not been passed to consumers at the pump as confirmed by readily available data. Competitive pressure among obligated parties prevents any one party from passing the costs to consumers, particularly when RIN prices are high and competitive positions are at greatest variance. Further, biofuels can provide a price benefit to consumers.

**a. If obligated parties utilized renewable fuels in sufficient amounts, the cost of RINs would approach zero**

RIN prices are determined by supply and demand. Demand for RINs is determined by the RFS obligations. The supply of RINs is determined by the amount of qualifying renewable fuel used within the United States (either as a blend with petroleum or as a neat fuel).<sup>75</sup>

From 2010 (the start of the RFS2 program) to early 2013, the price of D6 RINs was very low, due to oversupply. According to a model proposed by Scott Irwin at the University of Illinois, the price of RINs would approach zero if the amount of biofuel *used* within the United States matched or exceeded the RFS obligations.<sup>76</sup> Irwin’s model does not account for the cost or opportunity costs incurred by obligated parties who blend beyond their RVO and then transfer the RINs to other parties – particularly parties that do not use biofuels themselves.

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<sup>75</sup> Babcock, B. and Pouliot, S. The Economic Role of RIN Prices. Ames, Iowa: Center for Agricultural and Rural Development, Nov. 2013. 13-PB 14.

<sup>76</sup> Irwin, S. “More on Ethanol RINs Pricing” FarmdocDaily, October 31, 2013. <http://farmdocdaily.illinois.edu/2013/10/more-on-ethanol-rins-pricing.html>. (Appendix XX) (emphasis added)



The price of RINs also contains an opportunity cost and a projection of future demand. The steep rise in D6 RIN prices that began in February 2013 reflected the perception among some obligated parties that demand for this category of RINs would outstrip the supply within the foreseeable future, as the conventional RVO exceeded the ability of retailers to sell E10 within the U.S. market.<sup>77</sup> RIN prices rose to reflect either the costs obligated parties faced in marketing additional ethanol volumes as E15 or E85 blends<sup>78</sup> or the cost of alternative compliance options, such as increased use of BBD or commercial development of advanced biofuels. But the rise in D6 RIN prices also pushed the prices of D4 and D5 RINs higher, reflecting the opportunity costs for some obligated parties in obtaining their entire RVO through transferred credits, without any blending themselves. The steep decline in all RIN prices beginning in August reflected a prediction by obligated parties that EPA would reduce the RFS obligations for 2014.<sup>79</sup>

The Oil Price Information Service, in its daily "End of Day Ethanol Assessment Report" email, provides pricing for 2014 RINs that have yet to be generated but are secured by obligated parties through buy/sell agreements. The 2014 vintage D4 and D5 RINs consistently are higher-priced than 2013 and 2012 vintage RINs, which are valid for 2013. This trading confirms the expectation of future demand embedded in RIN prices. Current prices reflect lower future demand but remaining opportunity costs.

Delta Airlines, owner of Monroe Energy, which operates a refinery in Trainer, Pennsylvania, notes that the RIN price fluctuations occurred because owners of RINs withheld them from trading:

"Because the refinery operated by Monroe does not blend renewable fuels, it must purchase its entire RINs requirement in the secondary market or obtain a waiver from the EPA.... We believe that holders of RINs are withholding them from the secondary market as a consequence of these requirements, which have been increasing annually. This reduction of available RINs significantly impairs the secondary market as a means of compliance."<sup>80</sup>

Without a final rule for the 2013 RVO in place until Aug. 6, 2013, it is unsurprising that RIN owners held RINs to first ensure their own ability to meet future compliance obligations. Delta's strategy of purchasing all RINs – without any agreement to acquire them in exchange for fuel, or employ a hedging strategy, or wait until prices are more favorable as other refiners do – is ineffective.<sup>81</sup>

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<sup>77</sup> Verleger, Philip K., Jr. "Renewable Identification Numbers." Presentation to the Agricultural Advisory Committee, Commodity Futures Trading Commission, Washington, DC: July 25, 2013.

<sup>78</sup> Thompson, W., Meyer, S., Westhoff, P., and Whistance, J. "A Question Worth Billions: Why Isn't the Conventional RIN Price Higher?" FAPRI-MU Report #12-12. Columbia, MO: Food and Agricultural Policy Research Institute, December 2012.

<sup>79</sup> Irwin, S. "What's Behind the Plunge in RIN Prices?" FarmdocDaily, October 10, 2013. <http://farmdocdaily.illinois.edu/2013/10/whats-behind-the-plunge-in-rin.html>. (Appendix XXI)

<sup>80</sup> Delta Air Lines, Inc., Quarterly Report Pursuant to Section 13 or 15(D) of the Securities Exchange Act of 1934, for the quarterly period ended September 30, 2013. Commission File Number 001-5424. <http://www.sec.gov/Archives/edgar/data/27904/000002790413000008/dal930201310q.htm>. (Appendix XXII)

<sup>81</sup> Jennifer A. Dlouhy, "Delta Air Lines joins fight against renewable fuels standard," Fuel Fix, Dec. 27, 2013. <http://fuelfix.com/blog/2013/12/27/delta-air-lines-joins-fight-against-renewable-fuels-standards/>. (Appendix XXIII)



Other obligated parties – such as Hess and Global Partners LP – share RINs with business partners; others – such as Holly Frontier, Western Refining, and Alon USA – have made long-term investments to increase blending of ethanol and renewable diesel.<sup>82</sup> In past years, some obligated parties successfully relied on others to make these investments and bear most of the costs of RFS2 compliance – essentially avoiding the cost of polluting by purchasing RINs for pennies. Under the “polluter pays” principle and considering the role of RINs to equalize compliance costs and opportunities across the industry, those employing a strategy of purchasing RINs should expect the price to reflect the opportunity costs. The market has developed efficient mechanisms for assisting obligated parties obtain compliance credits, but uncertainty about the rules can have a disproportionate impact.

**b. Obligated parties should be expected to seek the lowest cost method for compliance.**

Individual companies can choose among several options for meeting their compliance obligations under the RFS2 program and can be expected to choose the lowest-cost options, according to their individual business models. Because RVOs are nested, the value of each RIN category impacts the others.<sup>83</sup> The overall obligation can be met with RINs from any of the nested categories. Only the cellulosic renewable fuel (D3 and D7) and BBD (D4) categories have specific mandates for use; however, these obligations can be met through use of many different types of fuels, including home heating oil. The advanced renewable fuel obligation can be met with any type of RINs except D6. The overall obligation can be met with any type of RIN, including D6. There is no mandate to blend ethanol, as is often erroneously asserted. And although most D6 RINs have been generated with volumes of ethanol, they are not exclusive to ethanol. Some volumes of biodiesel generate D6 RINs.

By setting the level of the overall RVO to the amount of ethanol that can be consumed in a blend of E10 and well below the industry’s production capacity, EPA’s proposed new methodology would impermissibly ensure that the vast majority of non-advanced RVOs are met with conventional ethanol. It also stands in stark contrast to the Agency’s stated desire to preserve “flexibility in how the required volume of advanced biofuel is achieved.”<sup>84</sup>

Ethanol is a cost-effective addition to the gasoline supply.<sup>85</sup> It is, therefore, the lowest cost option for meeting the overall RVO. From 2010 through 2012, and in earlier years under RFS1, many obligated parties blended more ethanol than was required by the RFS, creating a surplus of D6 RINs that were valid to meet up to 20 percent of RFS2 obligations in subsequent years. Some obligated parties could then purchase RINs, rather than blend biofuels, as the lowest-cost method of compliance. However, this strategy shifted compliance costs to those parties who invested in renewable fuel capacity, while minimizing costs to those who avoided compliance.

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<sup>82</sup> Bryan Sims, “Volatile RIN Credit Market Pits Winners, Losers in Obligated Party Quarterly Earnings,” *Ethanol & Biofuels News*, Vol. XXV, No. 33, Aug. 21, 2013.

<sup>83</sup> Bryan Sims, “How RIN Market Volatility Impacted Obligated Party 3Q 2013 Earnings,” *Ethanol & Biofuels News*, Vol. XXV, No. 46, Dec. 4, 2013.

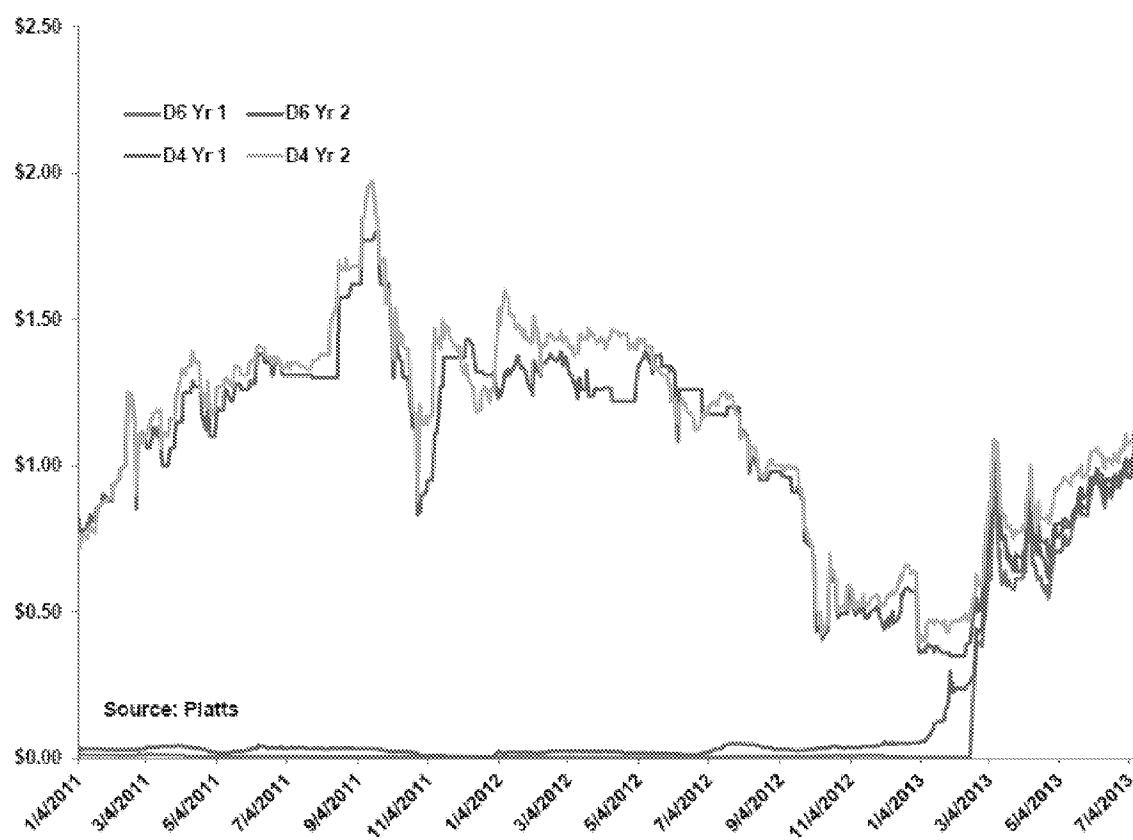
<sup>84</sup> Fed. Reg. 78(230), Fri. Nov. 29, 2013, pp.71753-71754.

<sup>85</sup> Wood, A. “Ethanol blending provides another proxy for gasoline demand,” *Today in Energy*, U.S. Energy Information Administration, Oct. 7, 2013. <http://www.eia.gov/todayinenergy/detail.cfm?id=13271> (Appendix XXIV)



The prices of D4 and D5 RINs over the same time frame were higher, due to relative scarcity. Use of qualifying fuel and the separation of RINs has been sufficient to meet the RFS obligation, with some carryover of RINs after 2010. No qualifying RINs were created under the RFS1 program for the undifferentiated advanced biofuel or BBD obligations. While there was no surplus of RINs, obligations for advanced and BBD biofuels were also comparatively low. The perceived shortage of valid D4 RINs caused prices to rise during 2011 and 2012. That perception also resulted in ongoing underutilization of capacity in the biodiesel industry. Increased confidence in the biodiesel industry reduced RIN prices beginning in the fall of 2012. The ability of the industry to rapidly increase production and blending of biodiesel and advanced biofuel should continue to lower the costs of D4 and D5 RINs, which should also lower the cost of D6 RINs – since the RINs are fungible for meeting the overall renewable fuel obligation.

Figure 1: D6 and D4 Prices, 2011-2013



Source: Platts

While cellulosic RINs have fallen short of the obligated volumes, their price has been controlled by the value of the Cellulosic Waiver Credit. The value of cellulosic biofuel as a



fuel can be calculated from the alternative RFS2 compliance option, which is to purchase the credit and a replacement gallon of advanced biofuel with a RIN.<sup>86</sup> Currently, because so few cellulosic RINs have been generated, the trading price has been pegged to the price of the waiver credit – but that does not reflect their true cost. As with other RINs, the price of a cellulosic RIN should rise to the cost of the next available compliance option. This mechanism ensures that cellulosic biofuels, when they reach commercial scale, will be cost-competitive with other fuels. EPA's proposal to lower the advanced biofuel obligation from 2.75 billion RINs in 2013 to 2.21 billion RINs in 2014 will create a disincentive for purchasing cellulosic biofuel by artificially lowering the cost of the alternative method of compliance.

Because the RFS provides flexible compliance options, obligated parties can calculate the costs of various options and select the least-cost method. They can also calculate at any time during the year the cost of compliance with the RVOs and adjust their compliance strategy. There is no existing requirement for obligated parties to purchase or transfer RINs during the year. If the price of any one category of RINs rises due to inadequate supply or even the inability to blend a specific type of renewable fuel into the fuel supply, it should rise only to match the next-lowest-cost method of compliance, since the RINs are fungible.<sup>87</sup> Obligated parties can also wait until RIN prices are more favorable, as many report doing. The next lowest cost method of compliance is not limited to purchasing RINs, and it can include future expectations of pricing as well as the opportunity costs of the compliance method. Those opportunity costs can include:

#### **i. Investment in the development of advanced and cellulosic biofuels.**

Growth of the cellulosic biofuel industry has been hampered by tight capital markets in the wake of the international recession.<sup>88</sup> Nevertheless, several first-of-a-kind cellulosic biorefineries have been commissioned and are producing fuel, with additional ones nearing construction completion and operational startup. Many more demonstration-scale cellulosic biorefineries have been built and operated as part of the commercial scale-up process. (See Appendix LXII)

Advanced biofuel biorefineries have also been demonstrated, built and operated, utilizing approved pathways for advanced feedstocks. The licensing of available and proven technology or investment in construction of a new biorefinery to secure RINs could for some obligated parties be a lowest-cost choice.

To meet RFS goals for advanced biofuel production, building capacity of 23 billion gallons would require a total cumulative investment of \$95 billion or more. The average capital cost per gallon of installed capacity for cellulosic and advanced biofuel facilities is projected to fall over time, from more than \$5.00 per gallon to less than \$4, as

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<sup>86</sup> Biotechnology Industry Organization. "The value proposition for cellulosic and advanced biofuels under the US federal renewable fuel standard." *Industrial Biotechnology*. April 2011, 7(2): 111-117. doi:10.1089/ind.2011.7.111. (Appendix LXVII)

<sup>87</sup> Irwin, S. Oct. 31, 2013.

<sup>88</sup> Bomgardner, Melody. "Building a New Biofuels Industry." *Chemical & Engineering News*, 91(4), pp. 20-22, Jan. 28, 2013.





commercialization of the industry progresses.<sup>89</sup> To date, the industry has invested more than \$5.9 billion to bring the first commercial facilities online, with an average investment of \$110 million per facility.<sup>90</sup>

RINs can help investors or first-adopter purchasers recoup these costs. For instance, though not an obligated party, United Airlines has formed a purchase agreement with AltAir Fuels that enables the biofuel producer to obtain financing and retrofit an existing oil refinery to produce renewable jet fuel.<sup>91</sup> The use of oil seed crops to produce jet fuel can be cost-competitive with a subsidy of \$0.35 per gallon.<sup>92</sup> Since AltAir's use of camelina is an approved pathway, RINs could provide that subsidy. However, since United Airlines is not an obligated party, registration of the facility for generation of RINs represents an opportunity cost for AltAir.

EPA's proposed rule will destroy incentives to invest in development of advanced biofuels by eliminating both incentives for new methods of compliance beyond E10 and the profits of conventional biofuel producers who are most likely to be first-adopters of the technology. Jim Collins, a senior vice president of DuPont, recently testified to the Senate Committee on Environment and Public Works, "If the RFS is administered in a way that keeps RINs cheap, then there will not be an incentive to create an efficient route to market for renewable fuel."<sup>93</sup> But moderate RIN prices for the D6 category of \$0.59 would be sufficient to incentivize substantial adoption of either E85 or butanol, according to an analysis by Butamax, a joint venture of BP and DuPont.<sup>94</sup>

Limiting demand for ethanol, as EPA has proposed, will also limit the resources of the biofuel industry to invest in advanced biofuels. As Matt Merritt, a spokesman for POET, put it, "Anything you do to hurt the profitability of the grain ethanol producers is going to hinder their ability to invest in this new technology as well."<sup>95</sup> POET-DSM plans to both deploy cellulosic ethanol production technology at its existing conventional biofuel facilities and license the technology to other conventional biofuel producers, as does DuPont.

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<sup>89</sup> BIO/Bio-Economic Research Associates, "U.S. Economic Impact of Advanced Biofuels Production: Perspectives to 2030." Washington, DC: February 2009.

<sup>90</sup> BIO data. (Appendix LXII)

<sup>91</sup> "United to purchase biojet from AltAir Fuels." Biomass Magazine, July 1, 2013.

<sup>92</sup> Winchester, N., McConnachie, D., Wollersheim, C., and Waitz, I. "Market Cost of Renewable Jet Fuel Adoption in the United States." Cambridge, MA: The Partnership for Air Transportation Noise and Emissions Reduction, March 2013.

<sup>93</sup> Statement of James C. Collins, Jr., Senior Vice President, Industrial Biosciences, Performance Polymers and Packaging & Industrial Polymers, DuPont. Oversight Hearing on Domestic Renewable Fuels, Committee on Environment and Public Works, Dec. 11, 2013.  
[http://www.epw.senate.gov/public/index.cfm?FuseAction=Files.View&FileStore\\_id=659cadf2-0420-4480-b9d8-d32c7735128a](http://www.epw.senate.gov/public/index.cfm?FuseAction=Files.View&FileStore_id=659cadf2-0420-4480-b9d8-d32c7735128a). (Appendix XXV)

<sup>94</sup> Butamax Advanced Biofuels. How the RFS Actually Delivers Renewable Energy Policy Objectives. Wilmington, DE: October 2013.

<sup>95</sup> Mark Steil, "New cellulosic plants may be hurt by changed RFS," Prairie Business, Dec. 17, 2013.  
<http://www.prairiebizmag.com/event/article/id/17116/group/Energy%20and%20Mining/#sthash.6YYuwNVv.dpuf>. (Appendix XXVI)



## ii. Continued development of biofuel infrastructure.

E15 and E85 are approved fuels. If ethanol continues to saturate the overall renewable volume obligation, it is "likely that E85 will be the least-cost approach to moving beyond the blend wall."<sup>96</sup> Babcock and Pouliot argue that since E85 generates more RINs than E15 and requires smaller volumes to meet the RFS obligations, and there are concentrated geographic areas where the number of flex-fuel vehicles (FFVs) creates a viable market, the cost of deploying infrastructure for E85 is lower than for E15. Market resistance to E85 may also be lower, since the American Petroleum Institute has launched a multimillion dollar public relations campaign to destroy demand for E15.<sup>97</sup> Nevertheless, changes being made to car warranties offered by automakers could expand acceptance of E15.<sup>98</sup>

Babcock and Pouliot analyze the economic incentive for fuel retailers and refiners to invest in the infrastructure for deploying E85, which they argue is tied to the price of corn, the price of RINs, and the price of gasoline.<sup>99</sup> They also recognize that the price of RINs and profitability of E85 sales would also have to recover the \$50,000 to \$60,000 investment in an E85 pump. Their published table, reproduced below, allows calculation of the RIN price that will drive adoption of E85, when E10 is priced as high as \$3.75 or as low as \$3.25 per gallon.

Figure 2: RIN Prices and E85 Pump Prices at Different E10 Prices

Fuel Cost Ratio	E10 Price = \$3.75/gal		E10 Price = \$3.25/gal	
	E85 Pump Price	RIN Price	E85 Pump Price	RIN Price
		\$/gal		
1.2	3.47	0.00	3.00	0.00
1.1	3.18	0.00	2.75	0.06
1.0	2.89	0.00	2.50	0.40
0.9	2.60	0.27	2.25	0.73
0.8	2.31	0.65	2.00	1.06
0.7	2.02	1.04	1.75	1.40
0.6	1.73	1.42	1.50	1.73

Source: Babcock and Pouliot

<sup>96</sup> Babcock, B. and Pouliot, S. Price It and They Will Buy: How E85 Can Break the Blend Wall. Ames, Iowa: Center for Agricultural and Rural Development, Aug. 2013. CARD Policy Brief 13-PB11.

<sup>97</sup> NACS Online, "Oil Industry Launches Ad Campaign to Repeal RFS," July 17, 2013.

<http://www.nacsonline.com/News/Daily/Pages/ND0717131.aspx> (Appendix XXVII)

<sup>98</sup> Tom Bryan, "Most automakers on board with E15," Ethanol Producer, Dec. 30, 2013.

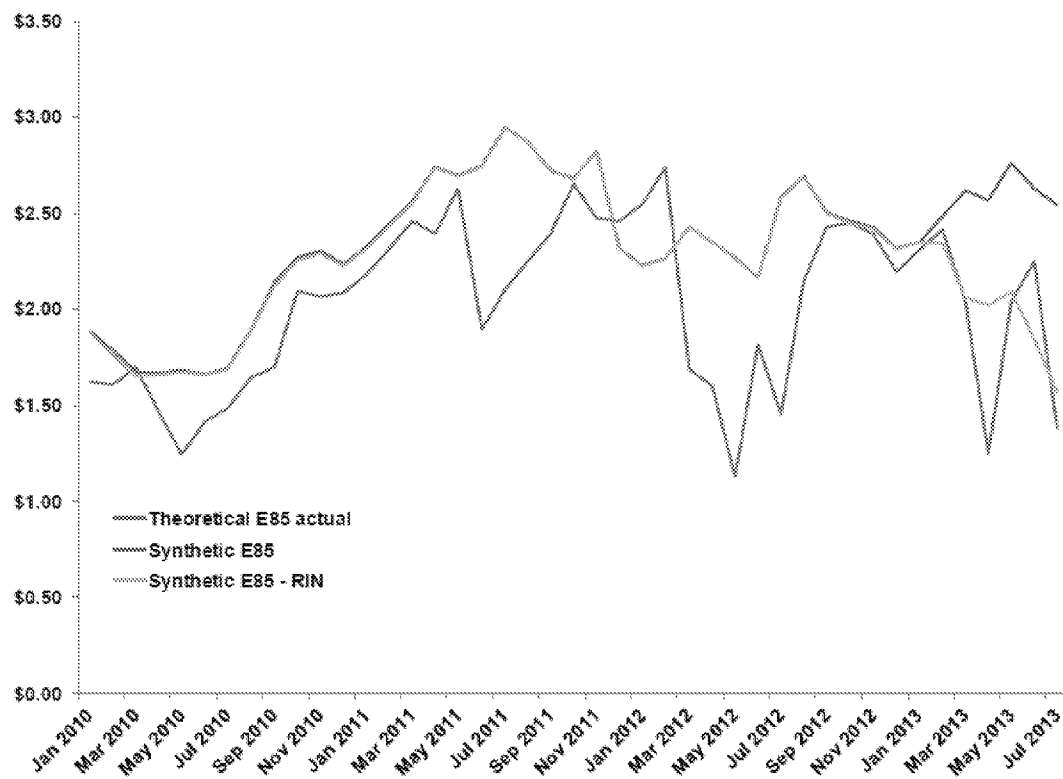
<http://www.ethanolproducer.com/blog/article/2013/12/most-automakers-on-board-with-e15> (Appendix XXVIII)

<sup>99</sup> Babcock, B. and Pouliot, S. How Much E85 Can Be Consumed in the United States? Ames, Iowa: Center for Agricultural and Rural Development, Nov. 2013. CARD Policy Brief 13-PB 15.



In July 2013, Philip K. Verleger – an oil industry analyst and editor of Petroleum Economics Monthly – testified to the Commodity Futures Trading Commission that Marathon Petroleum Corp. was “making a large, concerted effort to market E85” in Minnesota. The preliminary results indicated a 120 percent increase in E85 consumption during April and May 2013 due to favorable pricing. This was achieved by passing the profits from RIN sales to consumers.<sup>100</sup> The data in Figure 3 show that the E85, if offered at a discount to gasoline in the Midwest in order to encourage adoption, would easily match the synthesized price – drawn from the cost of the blending components – plus the RIN price. With 2013 RIN prices, E85 offered at scale in the Chicago and Nebraska markets could be priced \$0.30 to \$0.60 lower than gasoline, as shown in Figure 4.

Figure 3: RINs Can Reduce the Price of E85

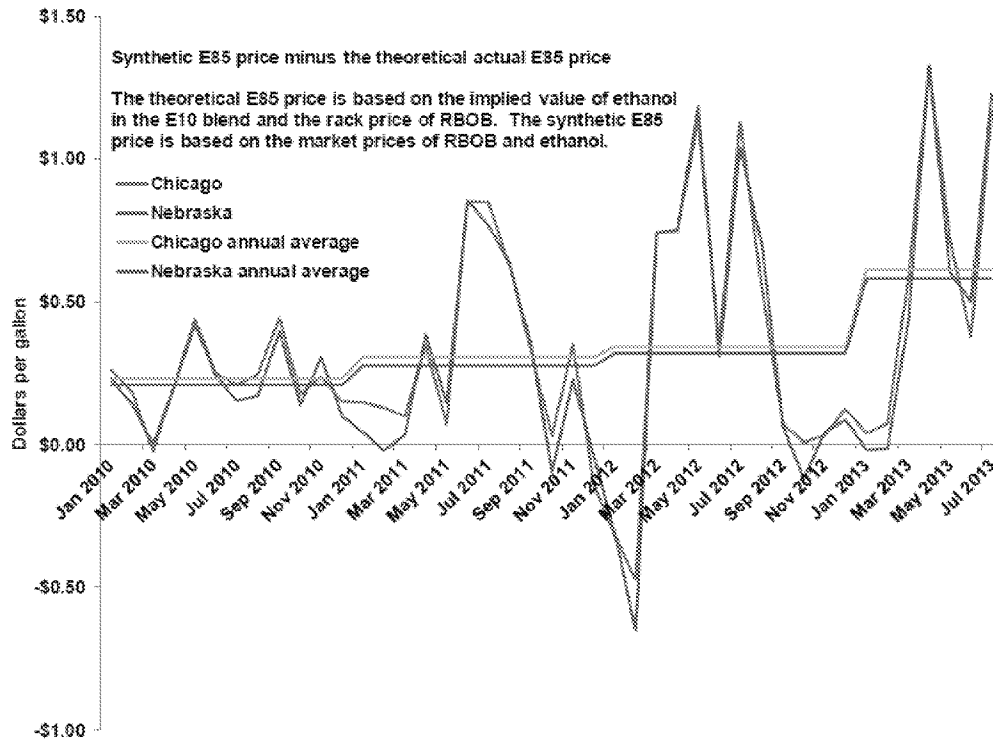


Source: Platts

<sup>100</sup> Ibid. Verleger, July 2013.



Figure 4: E85 Can Be \$0.30-0.60 Lower than E10, with Higher Volumes



Source: Platts

On August 8, Marathon reported that their income increased by \$22 million in the first six months of 2013, compared to the same time period in 2012, "primarily due to increases in sales of Renewable Identification Numbers ("RINs") and dividends received from pipeline affiliates."<sup>101</sup> In a subsequent report to investors, on November 11, Marathon stated, "On August 1, 2013, we acquired from Mitsui & Co. (U.S.A.), Inc. its interests in three ethanol companies for \$75 million."<sup>102</sup> Clearly, high RIN prices during 2013 incentivized this successful experiment in marketing E85.

Verleger includes the following chart of RIN prices necessary to incentivize E85 sales with a 20 percent discount relative to E10 gasoline. Data from the Minnesota Department of

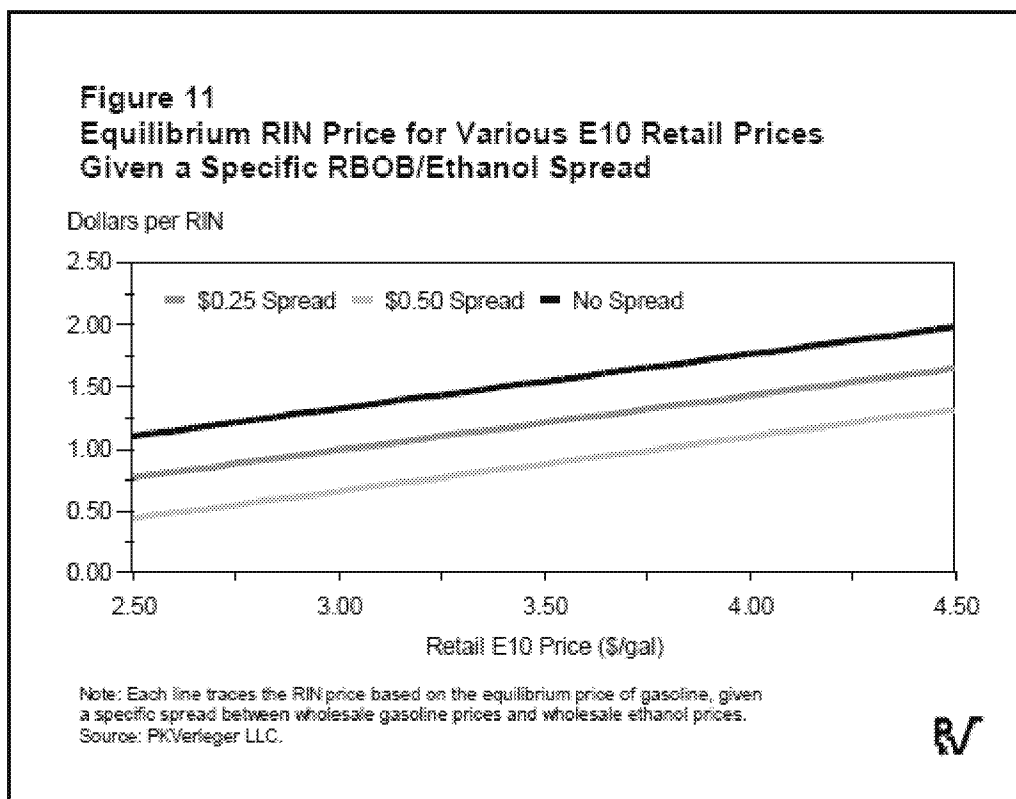
<sup>101</sup> Marathon Petroleum Corporation, Quarterly Report Pursuant to Section 13 or 15(D) of the Securities Exchange Act of 1934 for the Quarterly Period Ended June 30, 2013. Commission file number 001-35054. <http://www.sec.gov/Archives/edgar/data/1510295/000119312513326060/d543398d10q.htm>. (Appendix XXIX)

<sup>102</sup> Marathon Petroleum Corporation, Quarterly Report Pursuant to Section 13 or 15(D) of the Securities Exchange Act of 1934 for the Quarterly Period Ended September 30, 2013. Commission file number 001-35054. <http://www.sec.gov/Archives/edgar/data/1510295/000151029513000003/mpc-2013930x10q.htm> (Appendix XXX)



Commerce shows that reported and estimated sales of E85 declined in October, as the prices of gasoline and RINs declined.<sup>103</sup> There is already anecdotal evidence that EPA's proposed rule (and the preceding leak of that rule in October) have reversed investments in E85 infrastructure. Protec Fuels, which sells E85 pumps, has seen two orders put on hold since the release of the proposed rule.<sup>104</sup>

Figure 5: Equilibrium RIN Prices for E10 Retail Prices



Source: Verleger

Similarly, Global Partners LP made investments in ethanol production that would be undercut by EPA's proposed rule for 2014. In February 2013, the corporation acquired a crude oil and ethanol facility near Portland, Ore. In their third quarter report to investors, the company stated, "A reduction or waiver of the RFS mandate or oxygenate blending

<sup>103</sup> Minnesota Department of Commerce, Division of Energy Resources. "2013 Minnesota E85 + Mid-Blends Station Report." <http://mn.gov/commerce/energy/images/E-85-Fuel-Use-Data.pdf>, (Appendix XXXI) (accessed Dec. 19, 2013).

<sup>104</sup> Michael Hirtzer, "ANALYSIS - High-ethanol gas: Not coming to a pump near you," Reuters, Nov. 27, 2012. <http://uk.reuters.com/article/2013/11/27/usa-ethanol-e-idUKL2N0JA1EB20131127> (Appendix XXXII) (accessed Dec., 20, 2013)



requirements could adversely affect the availability and pricing of ethanol, which in turn could adversely affect our future gasoline and ethanol sales.”<sup>105</sup>

### **iii. Biodiesel blending and co-processing**

USDA and University of Illinois economists note that obligated parties have a choice between deploying E85 and additional renewable diesel.<sup>106</sup> Scott Irwin of the University of Illinois has developed a model of the relationship between biodiesel pricing, soybean pricing and D4 RIN values.<sup>107</sup> Similar to D6 RINs, there is an opportunity cost built into the pricing of these RINs, incorporating speculation on the future existence of tax credits and future price of RINs.

The model does not account for various opportunity costs in biodiesel blending. For example, Augsberg Energy finds that even with high RIN prices, only 44 percent of existing biodiesel capacity is in use in 2013.<sup>108</sup> Production is dominated by larger, better established companies. Smaller producers remain idle or closed due to lack of access to capital for maintenance and technology improvements as well as ongoing mistrust of small producers in the wake of fraud cases.

Augsberg finds that the total operating and idle capacity for the biodiesel industry is 2.2 billion gallons. EPA’s proposal of a 1.28 billion gallon BBD RVO and a 2.21 billion gallon total advanced biofuel RVO further destroys incentive to invest necessary capital to maintain or upgrade the idle and closed biodiesel refineries. This will further push the smallest BBD producers from the market. It will also leave no room for the deployment of other advanced biofuels.

The National Advanced Biofuels Consortium notes that petroleum refineries have unused capacity that could be modified to co-process biomass liquids to advanced biofuels and chemicals – as is being done by AltAir Fuels under agreement with United Airlines. The approval of a pathway to allow petroleum refiners to generate RINs from co-processed biomass is needed to help make this strategy economically competitive with biodiesel blending, during early stages of deployment.<sup>109</sup>

The Energy Information Administration projects a long-term decline in gasoline demand, but a long-term increase in diesel demand due to fuel efficiency standards.<sup>110</sup>

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<sup>105</sup> Global Partners, LP., Quarterly Report Pursuant to Section 13 or 15(D) of the Securities Exchange Act of 1934 for the Quarterly Period Ended September 30, 2013. Commission file number 001-32593. [http://www.sec.gov/Archives/edgar/data/1323468/000110465913082310/a13-19558\\_110q.htm](http://www.sec.gov/Archives/edgar/data/1323468/000110465913082310/a13-19558_110q.htm). (Appendix XXXIII)

<sup>106</sup> Meyer, S., Johansson, R. and Paulson, N. “E85 and the Blend Wall,” *FarmdocDaily*, Oct. 4, 2013. <http://farmdocdaily.illinois.edu/2013/10/e85-blend-wall.html>. (Appendix XXXIV)

<sup>107</sup> Irwin, S. “Biodiesel Supply, Demand, and RINs Pricing,” *FarmdocDaily*, Oct. 24, 2013. <http://farmdocdaily.illinois.edu/2013/10/biodiesel-supply-demand-rins-pricing.html> (Appendix XXXV)

<sup>108</sup> Augsberg Energy LLC, “Study 198- Biodiesel Industry Insight.” Mahwah, NJ: Sept. 11, 2013. <http://augsburgenenergy.com/2013/study-198-biodiesel-industry-insight/> (Appendix XXXVI)

<sup>109</sup> Rick Weyen, “A Refiner’s Perspective on Advanced Biofuels,” National Advanced Biofuels Consortium, March 30, 2012. [http://www.nabcprojects.org/pdfs/refiner\\_perspective\\_advanced\\_biofuels.pdf](http://www.nabcprojects.org/pdfs/refiner_perspective_advanced_biofuels.pdf). (Appendix XXXVII)

<sup>110</sup> U.S. Energy Information Administration, Annual Energy Outlook 2013, [http://www.eia.gov/forecasts/aeo/MT\\_liquidfuels.cfm](http://www.eia.gov/forecasts/aeo/MT_liquidfuels.cfm). (Appendix XXXVIII)



Export demand for diesel is a strong component of the current demand, as U.S. monetary policy has reduced the cost of U.S. refined diesel in comparison to the Brent crude benchmark.<sup>111</sup> The long-term trend will require investments by refiners to change the ratio of gasoline production to diesel production from the current 2.3 to 1.6 by 2035, according to EIA. Because diesel fuels are more expensive to refine, this change could also impact refinery profitability, reducing the 3-2-1 crack spread to 5-3-2. Tier 3 Vehicle Emission and Fuel Standards Program regulations could further tighten requirements for producing gasoline and diesel,<sup>112</sup> further raising the costs and lowering the profitability of refiners. Investments in renewable diesel and co-processing of biomass for some refiners could represent an opportunity to maintain a more optimal crack spread at a lower investment cost.

#### **iv. Some obligated parties have made infrastructure investments**

U.S. refiners and obligated parties have reported the costs of RINs and their strategies for managing those costs in their quarterly reports to investors, which are filed with the U.S. Securities and Exchange Commission and publicly available. A number of refiners have begun to increase their blending of ethanol and biodiesel as a way to mitigate the cost of RINs. For instance, Delek US Holdings, which owns refining, logistics and fuel retail interests, recounted during the third quarter of 2013 its prior adjustment to its refinery and logistics operations: "The Tyler refinery began supplying a 10% ethanol gasoline blend (E-10) in January 2008 and 5% biodiesel blends in June 2011. The El Dorado refinery completed projects at the truck loading rack in June 2011 to make E-10 available and in July 2012 to make biodiesel blends available."<sup>113</sup> Companies that already have made investments in blending capacity to comply with increasing future renewable fuel requirements would bear a disproportionate cost of compliance if the RVOs were set to minimize the value of RINs. They would in effect be supplying compliance at a low cost to companies that refused to make similar investments.

Likewise, pipeline companies and blending terminals that have made investments in infrastructure to supply biofuel blends would be unable to recover the costs of that investment through RIN sales. EPA's proposal has already lowered the value of RINs, negatively impacting these companies. For instance, Buckeye Partners, which owns a refinery as well as pipelines and terminals, reported to its investors, "In the third quarter of 2013, the value of RINs declined as the U.S. Environmental Protection Agency lowered the required blend volumes for renewable fuels, which had an adverse impact on earnings during the period."<sup>114</sup>

RINs are intended to balance the costs of compliance over time. EPA's proposal shifts that balance.

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<sup>111</sup> U.S. Energy Information Administration, "Short-Term Energy Outlook: Market Prices and Uncertainty Report," December 2013.

<sup>112</sup> Weyen, 2012.

<sup>113</sup> Delek US Holdings, Inc., Quarterly Report Pursuant to Section 13 or 15(D) of the Securities Exchange Act of 1934 for the Quarterly Period Ended September 30, 2013. Commission file number 001-32868. <http://www.sec.gov/Archives/edgar/data/1351541/000135154113000016/dk-9302013x10q.htm> (Appendix XXXIX)

<sup>114</sup> Buckeye Partners, LP, Quarterly Report Pursuant to Section 13 or 15(D) of the Securities Exchange Act of 1934 for the Quarterly Period Ended September 30, 2013. Commission file number 1-9356. [http://www.sec.gov/Archives/edgar/data/805022/000110465913080024/a13-19282\\_110q.htm](http://www.sec.gov/Archives/edgar/data/805022/000110465913080024/a13-19282_110q.htm) (Appendix XL)



**v. D6 RIN price spikes pushed other RIN prices above historical averages**

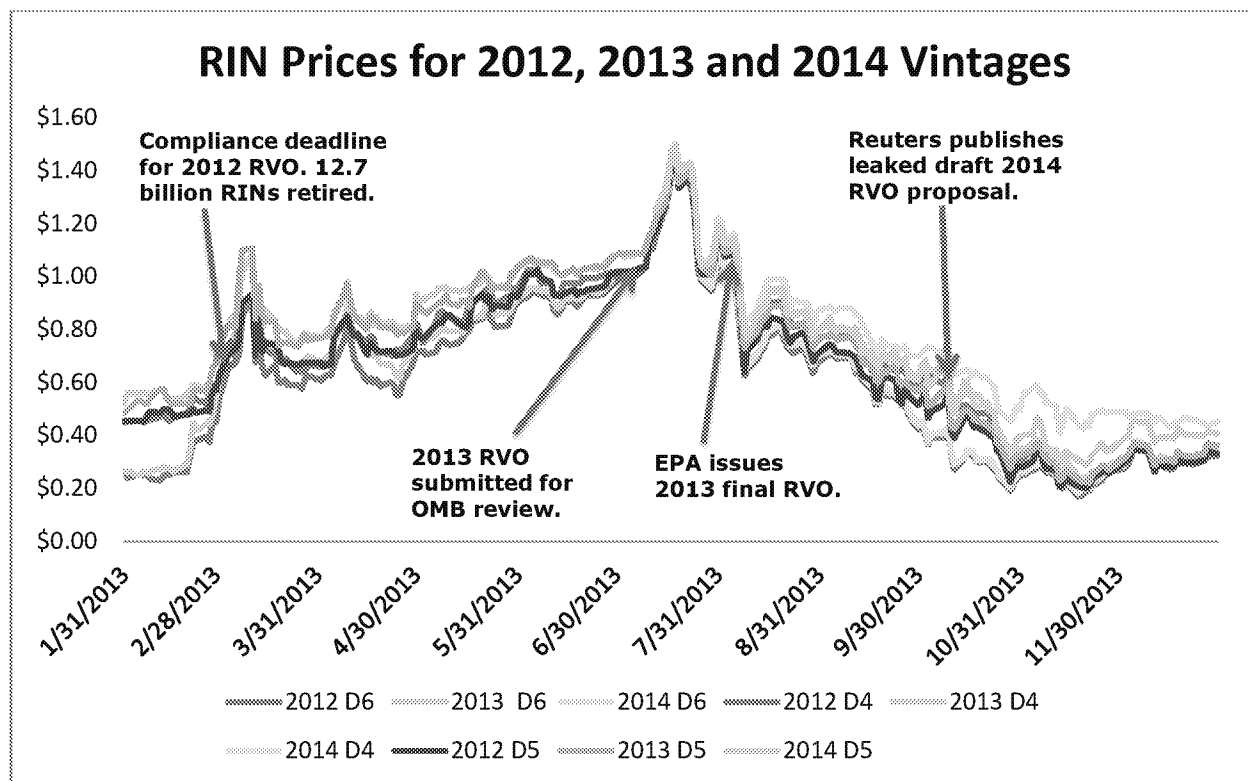
The rise in D6 RIN prices attributed to the blend wall also pushed D4 and D5 RIN prices higher, as shown in Figure 4. This led to an increase in production and use of these categories of fuels, as shown in Figure 5. After reaching highs in late July, RIN prices fell after EPA released the final RVOs for 2013, which gave much needed assurance to all stakeholders and encouraged more RIN trading. Importation of advanced biofuels – a short-term compliance strategy – declined with this industry assurance. EPA’s release of the 2014 RVO proposal in November also has kept RIN prices stable, but has undercut the price of 2012 and 2013 vintage RINs more than 2014 vintage RINs. Timely proposal and release of RVOs is important to all stakeholders. The RIN market can work to encourage increased production of biofuels.

The variance in pricing for different vintage RINs – including contracts for 2014 RINs that have not been generated yet – shows the need for stable policy over multiple years. Because biomass-based diesel can supply undifferentiated demand in both the conventional and advanced biofuel RVOs in the future – and overcome the E10 “blend wall” – both production and the value for 2014 vintage RINs remained high at the end of 2013, even as importation of advanced biofuel declined. To develop a domestic industry and reduce reliance on imports, the biofuels industry needs assurance of long-term increasing demand for production.





Figure 6: RIN Prices in 2013



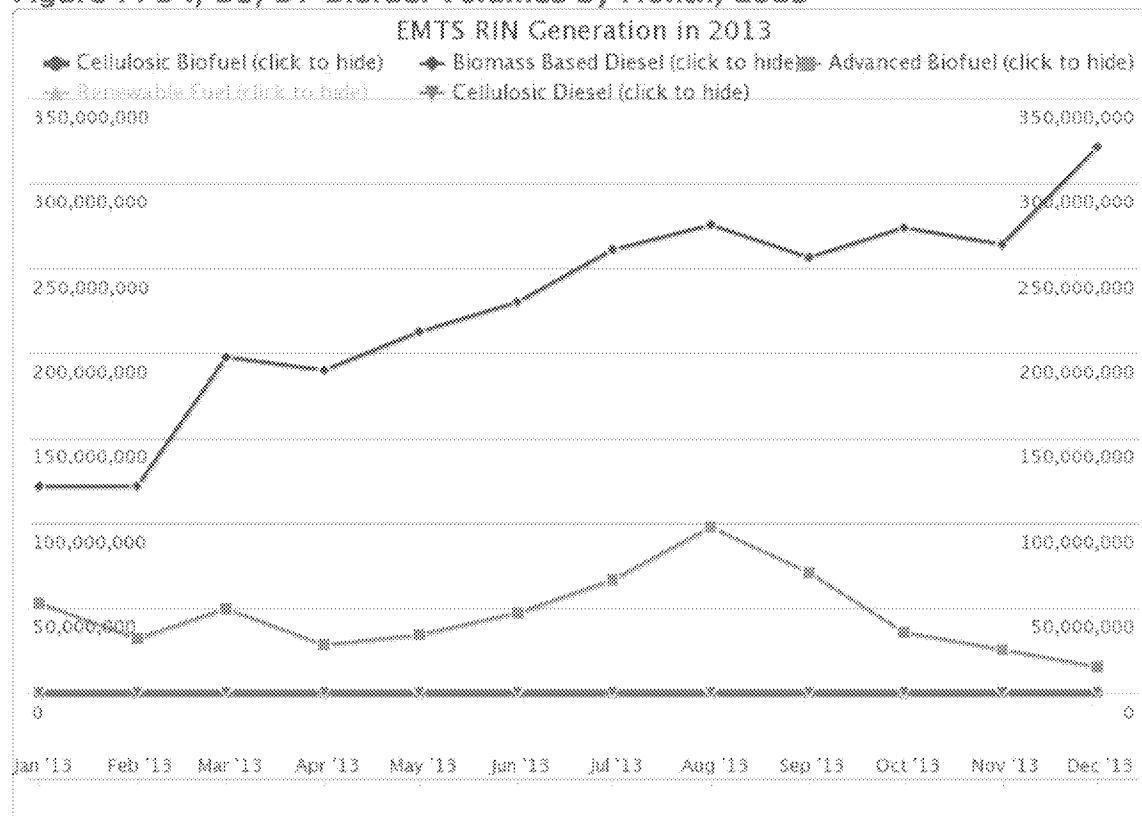
Source: Oil Price Information Service, OPIS End of Day Ethanol Assessment Report.

Pricing of RINs for cellulosic biofuels were unaffected by the increases in prices for other RINs. Once trade in cellulosic RINs matures, the cost will reflect the full cost of alternative methods of compliance. This value can drive further investment and deployment of cellulosic biofuels.<sup>115</sup> Policy that supports continued long-term value for advanced biofuel RINs, including BBD RINs, is necessary for the emergence of cellulosic biofuels.

<sup>115</sup> See Biotechnology Industry Organization, "The value proposition for cellulosic and advanced biofuels under the US federal renewable fuel standard," *Industrial Biotechnology*, April 2011, 7(2): 111-117. doi:10.1089/ind.2011.7.111.



**Figure 7: D4, D5, D7 Biofuel Volumes by Month, 2013**



Source: EPA Moderated Transaction System.

### **c. RIN costs are not passed through to consumers**

Competitive pressure among obligated parties employing various strategies for RFS compliance protects consumers from the costs of RINs. While some refiners must purchase RINs when their compliance strategy falls short, they must obtain them from other market participants who have blended the renewable fuel or defer their obligation. Integrated refiners such as Delek US Holdings and Phillips 66 report to their investors that the purchase and sales of RINs between their refining and logistics segments are eliminated in consolidated financial statements. Similarly, the cost and sales of RINs among unaffiliated refiners, blenders and fuel retailers are equalized through the market and absorbed by shareholders of the obligated parties. Simply put a refiner who tries to pass RIN purchase costs to the consumer can be undercut in price by a refiner or retailer who profits from RIN sales.

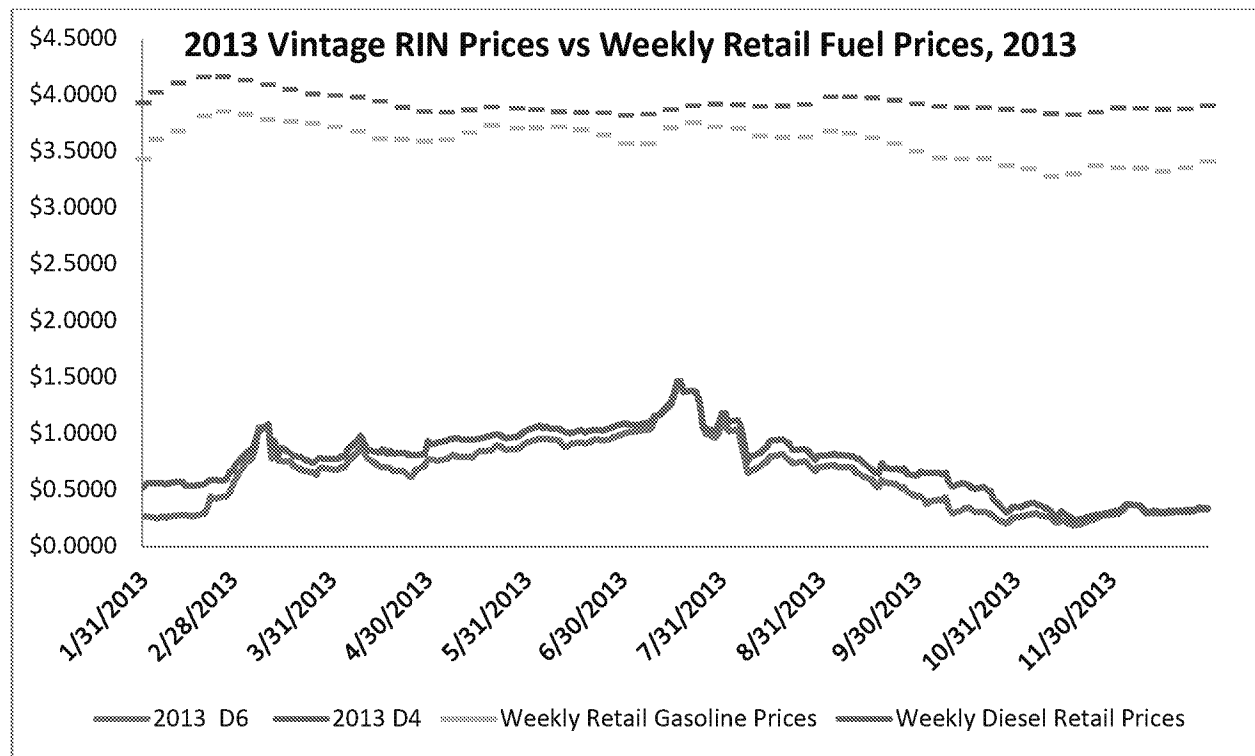
### **i. Data show that costs are not passed to consumers**

A simple comparison shows that the spikes in RIN prices in March, April and July were not reflected in on-road retail fuel prices during 2013. Average on-road prices for



gasoline in 2013 are down slightly compared to 2012, and they follow price patterns similar to 2012 and 2011<sup>116</sup> when the price of D6 RINs was negligible.

Figure 8: RIN Prices and Gasoline Prices, 2013



Sources: Oil Price Information Service, Energy Information Administration

Data from Figure 1 also indicate that D4 RIN prices averaged more than \$1.00 through 2011 and 2012, settling to the \$0.50 range in early 2013. Average monthly on-road diesel prices throughout 2011, 2012 and 2013 show similar price patterns, according to data from the Energy Information Administration. There is no correlation in on-road diesel prices to the spike in D4 RIN prices that occurred in September 2011 or the drop in October 2012.

In statements to their shareholders, a few refiners have acknowledged the zero-sum nature of the RIN market. For instance, CVR Energy, which operates both refineries and logistics, informed its investors in early November 2013:

"Many petroleum refiners blend renewable fuel into their transportation fuels and do not have to pass on the costs of compliance through the purchase of RINs to their

<sup>116</sup> T. Mason Hamilton, "Gasoline prices this Thanksgiving lower than a year ago," Today in Energy, Nov. 27, 2013. <http://www.eia.gov/todayinenergy/detail.cfm?id=13971> (Appendix XLI)



customers. Therefore, it may be significantly harder for the petroleum business to pass on the costs of compliance with RFS to its customers.”<sup>117</sup>

Northern Tier Energy acknowledged to its shareholders that the costs “could have a material adverse effect on our results of operations and financial condition, and our ability to make distributions to our unit holders.”<sup>118</sup>

Importantly, the competitive marketplace for transportation fuel means the consumer implications of RFS compliance are fundamentally different from those for programs regulating power generation, such as carbon cap and trade programs. Because electricity markets are highly regulated and lacking in local competition, utilities that incur high compliance costs can often pass those costs on to ratepayers. As we have demonstrated, in the case of the RFS, the highly competitive retail landscape for transportation fuel prevents compliance costs from reaching the consumer. In asserting that high RIN prices risk imposing compliance costs on consumers, EPA appears to confuse these two fundamentally different markets.

#### **d. EPA should make the EMTS system more transparent**

Thomas D. O’Malley, chairman of PBF Energy, in September 2013 publicly claimed that JPMorgan Chase and other financial institutions “had helped transform an environmental program into a profit machine, contributing to the market frenzy this year.”<sup>119</sup> The claim caused concern among members of Congress and sparked interest at the Commodity Futures Trading Commission in overseeing trading of RINs.<sup>120</sup> The Renewable Fuels Association pointed out that RIN price spikes were closely tied to the occurrence of Congressional hearings on the RFS.<sup>121</sup>

Mr. O’Malley’s claim is impossible to verify. According to EPA, RFS RIN transaction information recorded in the EPA Moderated Transaction System (EMTS) “is claimed Confidential Business Information and is withheld under exemption 4 (5 U.S.C. § 552(b)(4)).”<sup>122</sup> Nevertheless, numerous obligated parties have reported the costs of their RIN purchases in quarterly and annual reports to investors, which are filed with the SEC and publicly available and are reported in public fora such as investor calls.<sup>123</sup>

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<sup>117</sup> CVR Energy Inc., Quarterly Report Pursuant to Section 13 or 15(D) of the Securities Exchange Act of 1934 for the Quarterly Period Ended September 30, 2013. Commission file number 001-33492. <http://www.sec.gov/Archives/edgar/data/1376139/000137613913000024/cviq32013form10-q.htm> (Appendix XLII)

<sup>118</sup> Northern Tier Energy, Quarterly Report Pursuant to Section 13 or 15(D) of the Securities Exchange Act of 1934 for the Quarterly Period Ended September 30, 2013. Commission file number 001-35612.

<http://www.sec.gov/Archives/edgar/data/1533454/000119312513331832/d549068d10q.htm> (Appendix XLIII)

<sup>119</sup> Gretchen Morgenson and Robert Gebeloff, “Wall St. Exploits Ethanol Credits, and Prices Spike,” New York Times, Sept. 14, 2013. [http://www.nytimes.com/2013/09/15/business/wall-st-exploits-ethanol-credits-and-prices-spike.html?\\_r=0](http://www.nytimes.com/2013/09/15/business/wall-st-exploits-ethanol-credits-and-prices-spike.html?_r=0) (Appendix XLIV)

<sup>120</sup> Charles Abbott, “U.S. senator asks CFTC to look into biofuel credit pricing,” Reuters, Sept. 24, 2013. <http://www.reuters.com/article/2013/09/24/us-usa-agriculture-biofuels-idUSBRE98N0P720130924>. (Appendix XLV)

<sup>121</sup> Jennifer A. Dlouhy, “Renewable fuel pays off for some oil refiners,” FuelFix, Sept. 6, 2013.

<http://fuelfix.com/blog/2013/09/06/renewable-fuel-pays-off-for-some-refiners/> (Appendix XLVI)

<sup>122</sup> Byron J. Bunker, Director, Compliance Division, OTAQ. Letter to Paul Winters, Biotechnology Industry Organization, Re: Freedom of Information Act Request No. EPA-HQ-2014-000178, Dec. 4, 2013.

<sup>123</sup> Bryan Sims, “How RIN Market Volatility Impacted Obligated Party 3Q 2013 Earnings,” Ethanol & Biofuels News, Vol. XXV, No. 46, Dec. 4, 2013.



Price discovery in the RIN system appears to be very efficient to outside observers.<sup>124</sup> But that price discovery efficiency is only available to those engaged in the active trading of RINs. Investors and other stakeholders in the RIN system ought to have access to the same price discovery information.

EPA has made efforts during 2013 to provide additional information in a timely manner on RIN availability and retirement. However, the additional information is not sufficient to prove or disprove public claims of price manipulation through RIN trading. Increased certainty in the RIN trading system would mitigate concerns of improper trading. In the absence of timely rulemakings, it would also improve liquidity by mitigating the perception of future shortages.

#### **i. Timeliness in EPA rulemaking would mitigate uncertainty that contributed to RIN price spikes**

At least some of the rise and subsequent fall in RIN prices during 2013 was caused by uncertainty associated with the timing of the annual rulemakings. Prices began to climb in late February 2013 as the compliance deadline for 2012 RVOs approached and finalization of the 2013 RVO proposal was delayed as EPA awaited the results of the *API v EPA* suit. RIN prices declined in August as the 2013 RVO was finalized. RIN prices also dropped in October 2013 as a draft of the 2014 RVO was leaked to the press.<sup>125</sup> EPA should seek to eliminate uncertainty from the system by following past practice in establishing the RVOs, adhering to previous interpretations of the waiver authorities, and completing timely rulemakings.

EPA's proposal to reduce RVOs in 2014 – compared to proven renewable fuel use in 2013 – could cause shortfalls in biofuel production capacity in future years. Stakeholders are making decisions now, based on EPA administration of the RFS that will impact the types of renewable fuels produced and sold in future years.<sup>126</sup> Wally Tyner notes that setting the RVOs too low destroys the market pull to sell E85.<sup>127</sup> The same phenomenon occurs for other categories of biofuels and other options to solve the blend wall.

#### **e. Biofuel provides consumers cost savings**

The production and use of renewable fuel, driven by the Renewable Fuel Standard, has kept oil costs between \$15 and \$40 per barrel lower than they would have been.<sup>128</sup> This translates to a reduction in gasoline prices at the pump between \$0.50 and \$1.50, saving U.S. consumers between \$700 billion and \$2.6 trillion during 2013.<sup>129</sup> The savings for

<sup>124</sup> Irwin, Oct. 10, 2013.

<sup>125</sup> Cezary Podkul, "EPA proposes big reduction in 2014 ethanol blend volume: document," Reuters, Oct. 10, 2013. <http://www.reuters.com/article/2013/10/10/us-epa-ethanol-idUSBRE9990VU20131010> (Appendix XLVII)

<sup>126</sup> See Michael Hirtzer, "Bunge ethanol plant sale reflects doubt over EPA mandate," Reuters, Jan. 3, 2013. <http://www.reuters.com/article/2014/01/03/bunge-ethanol-idUSL2N0KD0N520140103>. (Appendix XLVIII) And "Murphy USA Opens 1,200<sup>th</sup> Store; Fuel Offerings Include E15 and E85," Fuel Marketer News, Dec. 11, 2013. <http://fuelmarketernews.com/murphy-usa-opens-1200th-store-fuels-include-e15-e85/> (Appendix XLIX)

<sup>127</sup> Wallace E. Tyner, "The Biofuels Renewable Fuel Standard at a Crossroads," PennEnergy, Nov. 18, 2013. [http://www.pennenergy.com/index/blogs/energy-and-environmental-economics/2013/11/the\\_biofuels\\_renewab.html](http://www.pennenergy.com/index/blogs/energy-and-environmental-economics/2013/11/the_biofuels_renewab.html). (Appendix L)

<sup>128</sup> Philip K. Verleger, "Doubling World Oil Prices: The Success of International Energy Agreements," The Petroleum Economics Monthly, Vol. XXX, No. 8, Aug. 2013.

<sup>129</sup> Philip K. Verleger, "Commentary: Renewable Fuels Legislation Cuts Crude Prices," PKVerlegerLLC.com, Sept. 23, 2013. [http://www.pkverlegerllc.com/assets/documents/130923\\_Commentary1.pdf](http://www.pkverlegerllc.com/assets/documents/130923_Commentary1.pdf) (Appendix LI)



consumers has been measured in past years in ranges between \$0.79 and \$1.69 per gallon.<sup>130</sup>

## **VI. Codifying the E10 blendwall is not the answer**

BIO firmly believes that the limits to market access for biofuels commonly referred to collectively as the “blend wall” represent a series of barriers contrived by obligated parties<sup>131</sup> to prevent biofuels from gaining access to the marketplace.<sup>132</sup> Multiple avenues exist for blending additional volumes of biofuel into the nation’s fuel supply, such as higher blends that are already approved and ready for use, and production of flex fuel vehicles. These options, combined with the introduction of new “drop-in” fuel molecules, provide a suite of opportunities for the growth of the entire biofuels industry and RFS compliance.

The main obstacle to this growth and compliance is the dilatory tactics of obligated parties to pursue the options available to them.<sup>133</sup> Obligated parties have had over five years to begin establishing the infrastructure necessary to distribute RFS-mandated biofuel volumes, but have taken few steps to do so. EPA should therefore resist all efforts by obligated parties to reduce RFS obligations based on blend wall claims. Any concession by EPA to accommodate these assertions regarding the blend wall will only serve to embolden obligated parties in their effort to resist compliance with the Clean Air Act.

Instead, as it is able through the proposed rule and other administrative actions, the Agency should encourage the development of biofuels. Consistent implementation of the RFS using the methodology established in prior rulemaking can readily grow the supply of biofuels in the market and overcome the blend wall by allowing RINs to reflect their market value. It will also help drive the market and encourage retailers to adopt new infrastructure.

EPA should also seek to identify opportunities to grow biofuel markets, including for drop-in biofuels. Reconsideration of the gasoline base fuel would enable engine manufacturers to optimize beneficial characteristics of biofuels in engine design, while expedited approval of new molecules would provide obligated parties with additional options for compliance not subject to blending limitations.<sup>134</sup>

### **a. Proposed Rule would codify the E10 blendwall; inconsistent with the RFS and Congressional intent; RFS2 final rule foresaw need to break through the blendwall.**

In 2007, the RFS2 volume targets were selected based on what Congress knew at the time. In debate on both the Energy Policy Act of 2005 (EPAct) and the 2007 Energy

<sup>130</sup> Du, X. and Hayes, D. The Impact of Ethanol Production on U.S. and Regional Gasoline Markets: An Update to 2012. Ames, IA: Center for Agricultural and Regional Development, May 2012.

<http://www.card.iastate.edu/publications/dbs/pdf/files/12wp528.pdf> (Appendix LII)

<sup>131</sup> ‘Big oil’ may block branded retail blender pumps: Green Plains

<http://www.platts.com/RSSFeedDetailedNews/RSSFeed/Oil/8102457> (Appendix LIII)

<sup>132</sup> Fill Up With Ethanol? One Obstacle is Big Oil, <http://online.wsj.com/article/SB117547886199856472.html> (Appendix LIV)

<sup>133</sup> Trade group requests U.S. probe of oil industry’s efforts to impede renewable fuels, <http://eenews.net/eenewspm/2013/03/19/archive/9?terms=RFA%2C+ConocoPhillips> (Appendix LV)

<sup>134</sup> [http://www.afdc.energy.gov/fuels/emerging\\_dropin\\_biofuels.html](http://www.afdc.energy.gov/fuels/emerging_dropin_biofuels.html) (Appendix LVI)



Independence and Security Act (EISA)<sup>135,136</sup> the Blend Wall did not appear to be part of the debate. In debating EISA, the House proposed a "Study of increased consumption of ethanol-blended gasoline with higher levels of ethanol," but this was not included in the final law. However, in setting 2022 targets that represented more than 20 percent of projected fuel demand, it is clear that Congress intended the RFS to drive biofuel adoption well beyond the threshold of 10 percent of total fuel consumption. The system of RINs, credits, and compliance options articulated in the statute clearly also anticipated the role of RIN-driven market forces in achieving this broader adoption.

Following passage of EISA, EPA anticipated the blend wall when implementing the renewable fuels standard, stating "Complete saturation of the gasoline market with E10 is referred to as the ethanol 'blend wall.' The height of the blend wall in any given year is directly related to gasoline demand." This was also reflected in AEO 2009, where EIA projected that gasoline demand would peak around 2013 and then start to taper off due to vehicle fuel economy improvements. "Based on the primary ethanol growth scenario, we're forecasting under today's RFS2 program, the nation is expected to hit the 14-15 billion gallon blend wall around 2014...although it could be sooner if gasoline demand is lower than expected. It could also be lower if projected volumes of non-ethanol renewable do not materialize and ethanol usage is higher than expected."<sup>137</sup>

Estimates on fuel projections were also revised after the U.S. and world economy fell into a prolonged recession, reducing energy consumption. At the same time, automakers began implementing higher CAFE standards, further reducing U.S. domestic demand for fuel. As worldwide economic growth resumed, overseas demand for finished fuel products grew while U.S. demand continued to decline, prompting petroleum refiners to focus on export markets. While this confluence of developments has hastened the transition across the ethanol blend threshold, the eventual transition was clearly anticipated in the law, and should have factored into fuel distribution plans of any obligated party intending to comply with the law. Indeed, some obligated parties have adequately anticipated the blend wall by incorporating greater distribution of E85 into their business models, or by investing in development of advanced drop-in biofuels. Unfortunately, other obligated parties have elected to resist compliance and instead challenge the law itself.

#### **b. Codifying the E10 blendwall invites introduction of barriers to future fuels.**

We have changed our nation's fuel supply and delivery system before, such as with the transition to unleaded gasoline. The greatest challenge in that transition was that unleaded fuels cost more than leaded fuels, discouraging consumers from switching. As with the introduction of unleaded fuel, there will likely be an adjustment period with the introduction of higher blends of biofuels. However, one significant difference this time is the incumbent industry does not make the alternative fuel and has an economic interest in blocking new renewable entrants to the marketplace.

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<sup>135</sup> <http://www.gpo.gov/fdsys/pkg/CREC-2007-12-13/pdf/CREC-2007-12-13-pt1-PgS15385.pdf> (Appendix LVII)

<sup>136</sup> <http://www.gpo.gov/fdsys/pkg/CREC-2007-12-06/pdf/CREC-2007-12-06-pt1-PgH14270-4.pdf> (Appendix LVIII)

<sup>137</sup> CFR, Vol 78, No. 58, p. 14759



On the petroleum downstream infrastructure side, there are a number of investments that would need to be made. A major impediment to consumers having the choice of E-85 and higher blends of biofuels is obligated parties blocking station owners from putting in blender pumps that would allow consumers to choose higher biofuel blends in gasoline.<sup>138</sup> Blender pumps would allow consumers to modify upward the blend of biofuels they desire to purchase. In addition, marketing arrangements could incentivize the consumers to utilize the higher blends. Other forms of investment to move towards higher blends could involve even greater investment in production and proposed pipelines to move large quantities of biofuels to high-population areas.

Obligated parties and their industry representatives have slowed infrastructure upgrades by using intimidation tactics to discourage station owners from investing, fabricating misfueling concerns, and opposing incentives. The oil industry has also worked to slow the approval of higher blends and new fuels through regulatory action and litigation.<sup>139</sup>

## **VII. EPA has regulatory flexibility to address challenges associated with the blend wall and infrastructure without decreasing biofuel volumes.**

As discussed in reviewing the RIN markets, the domestic supply of biofuels will be adequate to meet the overall statutory volume of 18.15 billion gallons of renewable fuel, including 3.75 billion gallons of advanced biofuel, in 2014. There are several potential scenarios for producing and using these volumes, with flexibility in the system provided by carryover RINs from 2013 and additional capacity under construction or available for import. EPA should not limit the evaluation of the availability of advanced biofuel volumes to non-ethanol fuels, as it proposes. EPA's ongoing delays in approving advanced and cellulosic biofuel pathways hinder the biofuels industry's ability to generate sufficient RINs to meet the statutory targets.

### **a. Inherent flexibility of RFS ensures sufficient compliance options. RIN prices are an incentive to exploit those options.**

As was described in greater detail in BIO's analysis of the RINs markets, availability of carryover RINs provides a significant measure of flexibility in the event of a shortfall in biofuel production or in an individual obligated party's compliance. A recent analysis that attempts to gauge whether sufficient RINs will exist in 2014 for compliance with the statutory RVOs errs in assuming that production will not respond to RIN prices.

EPA should follow past practice – as supported by the USCA decision in January 2013 – to set the overall advanced RVO at the maximum achievable volume. The demonstrated existence of rollover RINs from 2013 can provide sufficient flexibility to obligated parties to meet the statutory RVO.

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<sup>138</sup> Trade group requests U.S. probe of oil industry's efforts to impede renewable fuels, <http://eenews.net/eenewspm/2013/03/19/archive/9?terms=RFA%2C+ConocoPhillips> (Appendix LV)

<sup>139</sup> Fill Up With Ethanol? One Obstacle is Big Oil, <http://online.wsj.com/article/SB117547886199856472.html> (Appendix LIV)





## **b. Higher blends of biofuels will overcome the blendwall**

Greater use of gasoline with blends between 15 percent to 85 percent of biofuels is a solution to the blend wall that involves no new technological development or regulatory approval. A recent Congressional Research Service report explains the desirability and challenges of E15 and other intermediate blends:

For ethanol consumption to exceed the so-called blend wall and meet the RFS mandates, increased consumption at higher blending ratios is needed. For example, raising the blending limit from 10% to a higher ratio such as 15% or 20% would immediately expand the "blend wall" to somewhere in the range of 20 billion to 27 billion gallons. The U.S. ethanol industry is a strong proponent of raising the blending ratio. In response to industry concerns regarding the impending "blend wall," the EPA, after substantial vehicle testing, issued a partial waiver for gasoline that contains up to a 15% ethanol blend (E15) for use in model year 2001 or newer light-duty motor vehicles (i.e., passenger cars, light-duty trucks, and sport utility vehicles), but announced that no waiver would be granted for E15 use in model year 2000 and older light-duty motor vehicles, as well as in any motorcycles, heavy duty vehicles, or non-road engines. According to the Renewable Fuel Association (RFA), the approval of E15 use in model year 2001 and newer passenger vehicles expand[ed] eligibility to 62% of vehicles on U.S. roads at the end of 2010. In addition to the EPA waiver announcement, fuel producers will need to register the new fuel blends and submit health effects testing to EPA. Further, numerous other changes have to occur before gas stations will begin selling E15, including many approvals by states and potentially significant infrastructure changes (pumps, storage tanks, etc.). As a result, the vehicle limitation to newer models, coupled with infrastructure issues, are likely to limit rapid expansion of blending rates. Moreover, a group of engine and equipment manufacturers has challenged the partial waiver in court, arguing that EPA failed to estimate the likelihood of misfueling (using E15 in equipment denied a waiver), and the economic and environmental consequences of that misfueling.<sup>140</sup>

Other forms of intermediate blends, ranging from 30 percent blends to 50 percent blends, have been discussed and promoted. Most of the regulatory approval issues attendant to the 15 percent blend likewise apply to these higher intermediate blends with one distinction - there would be a need for new infrastructure investment with these higher intermediate blends. Thus the challenge to achieve these higher, intermediate blends is more daunting than perhaps other pathways.

Despite these challenges, EPA should not be limiting blending of biofuels because obligated parties have not put in the necessary infrastructure. Instead it should keep volumes at the statutory volumes to incentivize greater development of biofuels infrastructure. As examined by Bruce Babcock and Sebastien Pouliot at Iowa State University, meeting the mandate is feasible in 2014 with no new stations. The supply concern pertains to the supply of stations, not the supply of biofuels. Currently, there are about 2500 E85 stations in the U.S., about 2 percent of all stations. Increasing the

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<sup>140</sup> Schnepf, Randy and Yacobucci, Brent. 14 Mar. 2013. Renewable Fuel Standard (RFS): Overview and Issues



consumption of biofuels beyond 10 percent levels can be accomplished by increasing the number of stations that sell the fuel. If the increased mandates wait for an increase in infrastructure, such as E85 pumps to be built, the mandates will never increase.

EPA should look to work with obligated parties to get greater volumes of biofuels out on the market and work with retailers to better educate consumers on what options are available for them at the pump. However, reducing the volumes in 2014 based on supply infrastructure not only exceeds EPA's authority, as discussed earlier, but also runs counter to the overall goal of getting biofuels on the market.<sup>141</sup>

### **c. Infrastructure beyond the RFS**

The most effective driver in the development of infrastructure to deliver greater volumes of biofuels is the RFS and an effective RIN market that is driven by market fundamentals. However, additional programs can help spur the development of infrastructure.

The U.S. Department of Agriculture has made use of the Rural Energy for America Program (REAP) under the Farm Bill to help spread the development of blender pumps. As announced by Secretary Tom Vilsack, USDA had a goal to install 10,000 blender pumps.<sup>142</sup> As stated by Secretary Vilsack, "As part of President Obama's 'all of the above' energy strategy, USDA has partnered with thousands of America's farmers, ranchers and rural businesses to help them save energy and improve their bottom line."<sup>143</sup>

Unfortunately, despite USDA's efforts to develop the infrastructure necessary for higher blends for biofuels, these efforts have faced significant opposition from incumbents<sup>144</sup> and Congress has blocked use of the program for these purposes. BIO would encourage EPA and the Administration to explore other options for spurring development of infrastructure, but it should maintain the RFS as is, since it has the greatest capability of driving infrastructure development.

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<sup>141</sup> Babcock, Bruce; Pouliot, Sebastien. 2014 Jan. Center for Agricultural and Rural Development, Iowa State University. "Feasibility and Cost of Increasing U.S. Ethanol Consumption Beyond E10." available at: <http://www.card.iastate.edu/publications/synopsis.aspx?id=1217> (Appendix LIX)

<sup>142</sup> Renewable Fuels Association. 4 Apr 2013. USDA Accepting REAP Fund Apps for Blender Pump Installation, BYO Ethanol Offers Free Gran Services. available at: <http://www.ethanolrfa.org/news/entry/usda-accepting-reap-fund-apps/> (Appendix LX)

<sup>143</sup> Jessen, Holly. "REAP grants include money for blender pumps." 22 Oct 2012. Ethanol Producer Magazine. Available at: <http://ethanolproducer.com/articles/9229/reap-grants-include-money-for-blender-pumps>

<sup>144</sup> Clayton, Christ. 19 Feb. 2011. DTN The Progressive Farmer "House Votes Against Money for E15, Blender Pumps, EPA." available at: [http://www.dtnprogressivefarmer.com/dtnag/view/ag/printablePage.do?ID=BLOG\\_PRINTABLE\\_PAGE&bypassCache=true&pageLayout=v4&blogHandle=policy&blogEntryId=8a82c0bc2da1a99e012e3ec7a8b3072f&articleTitle=House+Votes+Against+Money+for+E15%2C+Blender+Pumps%2C+EPA&editionName=DTNagFreeSiteOnline](http://www.dtnprogressivefarmer.com/dtnag/view/ag/printablePage.do?ID=BLOG_PRINTABLE_PAGE&bypassCache=true&pageLayout=v4&blogHandle=policy&blogEntryId=8a82c0bc2da1a99e012e3ec7a8b3072f&articleTitle=House+Votes+Against+Money+for+E15%2C+Blender+Pumps%2C+EPA&editionName=DTNagFreeSiteOnline) (Appendix LXI)



**d. Increasing blends of biofuels will help meet CAFE and Tier 3 goals.**

As BIO explained in its comments on EPA's Proposed Rule on "Control of Air Pollution from Motor Vehicles: Tier 3 Motor Vehicle Emission and Fuel Standards,"<sup>145</sup> the final Tier 3 rule has the potential to continue the progress of the biofuels industry and help alleviate the blend wall. EPA should work to finalize its Tier 3 rulemaking and set the emissions test fuel to encourage further investment and adoption of biofuels, including advanced drop-in biofuels, ethanol and other fuel molecules. Encouraging biofuels, including higher blends of ethanol and drop-in biofuels, would help meet EPA's overall goal in this rulemaking to address the impacts of motor vehicles and fuels on air quality and public health.<sup>146</sup> For instance, advanced drop-in biofuels have the same molecular make-up of traditional petroleum-based fuels, but they contain little or no sulfur and have significantly reduced GHGs. In addition, ethanol combusts without producing air toxics, which are the main source of particulate matter. Blending ethanol in gasoline also reduces the need for unhealthy detergent additives which are mandated to reduce the formation of engine deposits from gasoline that increase exhaust emissions and result in the loss of fuel economy and performance. These benefits of biofuels only rise with higher blends. BIO encourages EPA to issue a final rule that maximizes investment and adoption of all biofuels, including higher blends and drop-ins.

**e. Increased investment in advanced drop-in fuels. Many drop-in solutions are at the cusp of commercialization.**

Economics will dictate the best solution to the blend wall, and a combination of many different ways for biofuels to enter the marketplace may be required. One potential key path to address the blend wall is to increase investment in and development of "drop-in biofuels," which have the same properties and composition as petroleum-based fuels and may be used in existing infrastructure. Because of these factors, existing downstream petroleum infrastructure and engines can run on these fuels even at blends beyond 10 percent. These biofuels, including biobutanol, may be produced from any biomass and blended using existing infrastructure at blends much higher than 10 percent. Due to biobutanol's higher energy content this is equivalent to 21 percent ethanol. Biobutanol has been endorsed by the National Marine Manufacturers Association.

The primary challenge for drop-in biofuels is scale, but this could be addressed with greater investment in this technology (which is driven by the stability of the RFS policy). Certainly as one option to address the blend wall, drop-ins have some very attractive features: they require no change in existing infrastructure and are feedstock flexible and may be produced from both starch and sugar-based biomass sources. In addition, existing ethanol facilities may be cost-effectively retrofit to produce biobutanol and other drop-in biofuels.

The expansion of aviation biofuels as drop-ins would be another potential solution to the blend-wall. Currently, sustainable aviation biofuels, derived from biomass-based plant

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<sup>145</sup> Environmental Protection Agency, Control of Air Pollution from Motor Vehicles: Tier 3 Motor Vehicle Emission and Fuel Standards, 78 Fed. Reg. 29,816 (proposed May 21, 2013) (to be codified at 40 CFR Pts. 79, 80, 85,600, 1036, 1037, 1065 and 1066), available at <https://www.federalregister.gov/articles/2013/05/21/2013-08500/control-of-air-pollution-from-motor-vehicles-tier-3-motor-vehicle-emission-and-fuel-standards>).

<sup>146</sup> The Proposed Rule at 29816.



material and waste fats, are approved for use in jet engines in an up to 50 percent blend. This fuel is a drop-in substitute for fossil-based petroleum currently used in aviation. Some commercial airlines have flown test flights on blends of sustainable aviation fuel, and aviation is well-suited for rapid deployment of drop-in biofuels. The commercial aviation industry has system-wide advantages including the ability to use current infrastructure: drop-in biofuels utilize the same pipelines and tanks as petroleum. It also has highly concentrated nodes of supply and demand, where the largest 40 U.S. airports account for more than 90 percent of jet fuel used by commercial aviation. Thus, if sustainable aviation biofuel producer can deliver to the 40 large airports, in a cost effective manner, they will have access to a large portion of the commercial jet-fuel market.

**f. Extend obligations for all gasoline and diesel to parties who supply finished transportation fuels to retail outlets or to wholesale purchaser=consumer facilities**

To the extent the Agency does not believe the other options for regulatory flexibility under the RFS are substantial enough to maintain the statutory levels of biofuel volumes while addressing the challenges associated with the blend wall and infrastructure, it should consider extending the obligations for all gasoline and diesel to parties who supply finished transportation fuels to retail outlets or to wholesale purchaser-consumer facilities. EPA considered this option in its *2010 Regulation of Fuels and Fuel Additives: Changes to Renewable Fuel Standard Program*. The agency rejected such an approach at that time because of differences between obligated parties and the view that the concerns expressed "do not...warrant a change to obligated parties for the RFS2 program at this time." At the time EPA, stated it would, "continue to evaluate the functionality of the RIN market. Should [it] determine that the RIN market is not operating as intended, driving up prices for obligated parties and fuel prices for consumers, [it would] consider revisiting this provision in future regulatory efforts."<sup>147</sup>

While it is BIO's contention that the RIN market is operating as it should, driving the investment in greater biofuels use and infrastructure, to the extent the agency believes there is inequity in the impacts of the current RFS obligations, it would be worth the agency exploring this methodology as a possible mechanism to address such inequity, instead of enacting the methodology proposed in this rule that will limit any future biofuels growth.

**VIII. EPA should not inhibit investment and job creation in the biofuels industry, or risk energy independence and environmental gains by reducing overall and advanced RVOs**

The advanced biofuel industry has invested more than \$5.9 billion in scaling up production capacity for advanced and cellulosic biofuels. This is still a fraction of the investment necessary to deploy commercial production capacity for these fuels. Ongoing investment and capacity building depends on growth in the potential market for these fuels. Enshrining in regulatory policy a market barrier to using these fuels blocks potential growth and will curtail investment.

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<sup>147</sup> 2010 Regulation of Fuels and Fuel Additives: Changes to Renewable Fuel Standard Program, 75 Fed. Reg. 58, 14721-14722 (Finalized March 26, 2010) (codified at 40 C.F.R. pt. 80) available at: <http://www.gpo.gov/fdsys/pkg/FR-2010-03-26/pdf/2010-3851.pdf>



**a. The RFS and EPA's consistent implementation are fundamental drivers of biofuels investment**

The value proposition for cellulosic and other early stage advanced biofuels is derived both from the price of the commodity fuel and the cost of meeting the RVO. Congress created a specific RVO for cellulosic biofuel, denoting its development as a national priority; but it nested this RVO within the advanced and overall RVOs, denoting that growth of the cellulosic industry was far from certain. The cost of meeting each nested RVO is determined by alternative compliance options. The cellulosic RVO has a unique compliance option, which is the purchase of a cellulosic waiver credit and a replacement qualifying gallon of advanced biofuel.

The cost of the cellulosic waiver credit is determined each year by the average wholesale price of gasoline. It is set as the higher value of \$3.00 minus the AWP of gasoline or \$0.25 per gallon (adjusted for inflation from the 2008 base). This mechanism ensures that cellulosic biofuels will be cost-competitive with petroleum fuels when they are brought to market. As the annual AWP of gasoline has approached the \$3.00 mark, the cost of the cellulosic waiver credit has approached the minimum cost. The cost of a waiver credit for the 2013 cellulosic RVO, which is due in June 2014, is \$0.42. Average wholesale gasoline prices in 2013 appear to be similar to or slightly lower than prices in 2012. Therefore the price of the cellulosic waiver credit should remain consistent.

When an obligated party uses a waiver credit to meet their cellulosic RVO, they must also retire an advanced biofuel RIN – either D4 or D5. The average price of a 2013 vintage D4 RIN during 2013 was \$0.75, with a minimum price of \$0.24 in November and a maximum of \$1.47 in July, according to the Oil Price Information Service. The average price of a 2013 vintage D5 RIN during 2013 was \$0.73, with a minimum price of \$0.22 in November and a maximum of \$1.47 in July. An obligated party using the waiver credits for compliance with the 2013 RVO would face a minimum cost of \$0.64 per gallon, or an average cost of \$1.15. This mechanism helps ensure that cellulosic biofuels will also be cost-competitive with other advanced biofuels in the early stages of cellulosic biofuel deployment.

The variation in pricing of advanced biofuel RINs throughout the year causes variations in the calculus of purchasing cellulosic biofuel with attached RINs. During July, the cost of the alternative compliance option for the cellulosic RVO appeared to be \$1.89 per gallon, which would make investment in building cellulosic biofuel capacity highly attractive. Consistent implementation of the rules over a longer time period is necessary to maintain long-term interest in investing in the production of these fuels.

Companies rely on the RFS structure as a guarantee that there will be market space for the fuels and that the cost will be competitive both with petroleum gasoline and other advanced biofuels.

**i. Investment in cellulosic biofuels will decline under EPA's proposal**

Since production of cellulosic biofuels remains at an early commercial scale, dominated by first-of-a-kind biorefineries, the production costs for initial volumes remains high. The costs of building and engineering first-of-a-kind biorefineries while continuing research and development of cellulosic biofuels are borne by investors in the cellulosic



biofuel companies. Markets for new agricultural feedstocks are also being developed by farmers, in cooperation with land grant universities and the U.S. Department of Energy. These large investments are made with the expectation of wider commercialization of the technology and the ability to recoup investments over the long term. Wider commercialization, which requires further capital investment, will only occur if investors have a reasonable assurance that the market will be open to increasing volumes of biofuels.

EPA must propose a cellulosic biofuel RVO that reflects a projection of what will happen in the market during 2014 as accurately as possible. However, as with other government projections, EPA's projection can influence the market and determine what actually happens during 2014. If EPA reduces the advanced biofuel requirement to a level well below proven production and use, as it proposes, it will significantly reduce the cost of the alternative method of complying with the cellulosic biofuel RVO and discourage production of cellulosic biofuels. Similarly, if EPA limits the portion of the RVOs that can be met with ethanol, by codifying the blendwall, the agency will discourage the use of cellulosic ethanol – by forcing it to directly compete for limited market space with lower-cost volumes of conventional ethanol that benefit from more mature technology and economies of scale.

EPA's prior decision to leave the 2012 cellulosic RVO at zero, following the Court order,<sup>148</sup> and proposal to vacate the cellulosic RVO for 2011<sup>149</sup> create uncertainty about the annual obligation over multiple years. EPA is forced to vacate the cellulosic RVO for 2011 because some obligated parties elected to defer their 2011 RVO to 2012; there were 1,741 valid 2012 vintage cellulosic RINs available for parties to meet the combined obligations for 2011 and 2012, which was clearly inadequate. It is apparent that the shortfall in cellulosic RIN generation in 2013 could cause similar compliance challenges in 2014, should obligated parties elect to defer portions of their 2013 obligation. Sufficient RINs to meet both 2014 RVOs and deferred 2013 RVOs would be required during 2014.

## **ii. Without conventional and advanced volumes, cellulosic biofuels will not come to fruition**

Production and use of conventional biofuels and biodiesel currently represent the lowest cost methods for meeting the annual RVOs, particularly when compared with multi-year investments in cellulosic and other advanced biofuels. Importation of advanced ethanol with D5 RINs also remains a lower-cost compliance alternative, though its cost exceeds the cost of BBD use. Importation of advanced ethanol spiked in July and August of 2013 as D4 and D6 RIN values climbed, but quickly declined again.

Since cellulosic biofuels will also consist of ethanol and renewable diesel, greater market acceptance of E15 and E85 as well as renewable diesel blends are just as important for cellulosic biofuels. The conventional and biodiesel industries are expanding market space and acceptance for these fuels, which in the future are expected to be filled by cost-competitive cellulose.

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<sup>148</sup> Fed. Reg. 78(158), Thurs. Aug. 15, 2013.

<sup>149</sup> Fed. Reg. 78(230), Fri. Nov. 29, 2013. P.71751.



**b. EPA's proposed rule puts \$5.9 billion investment and nearly 8,000 jobs at risk**

BIO has tracked publicly available data on ongoing cellulosic and advanced biofuel projects, including the total amount of private investment and jobs created. To date, more than \$5.9 billion has been invested within the United States by private investors in pilot, demonstration and commercial facilities.<sup>150</sup> Some of these facilities are currently under construction or in early stages of planning. The list does not include facilities that are no longer in development, including a few pilot facilities that ceased operation or projects that were discontinued.

The projects currently employ or promise to employ more than 7,900 people on a full time, ongoing basis. Further, construction of these facilities has created or will create an additional 8,600 jobs on a short-term basis.

**c. Biofuel production has helped reduce U.S. foreign oil imports**

Since the start of the RFS, the use of renewable fuel has helped to displace the importation of petroleum. While demand for gasoline is declining and expected to decline over the long term, demand for diesel fuel is increasing. Further, the RFS allows other types of fuels – jet fuels, naphtha and home heating oil – to generate RINs, providing new opportunities to displace foreign oil.

The U.S. Energy Information Administration's November 2013 Short Term Energy Outlook projects 2014 gasoline demand of 133.2 billion gallons, including 13.35 billion gallons of ethanol by volume, and petroleum diesel consumption of 55.3 billion gallons.<sup>151</sup> EIA also notes that gasoline consumption increased during 2013 by 1.2 percent, while diesel consumption grew by 2.5 percent.<sup>152</sup> EIA further projects gasoline consumption to remain flat, with a 0.1 percent decline, while diesel consumption increases by 1.2 percent. EPA's proposal to reduce the RVOs for renewable fuels in 2014 below the RVOs for 2013 would require the United States to use more oil in 2014 than in 2013.

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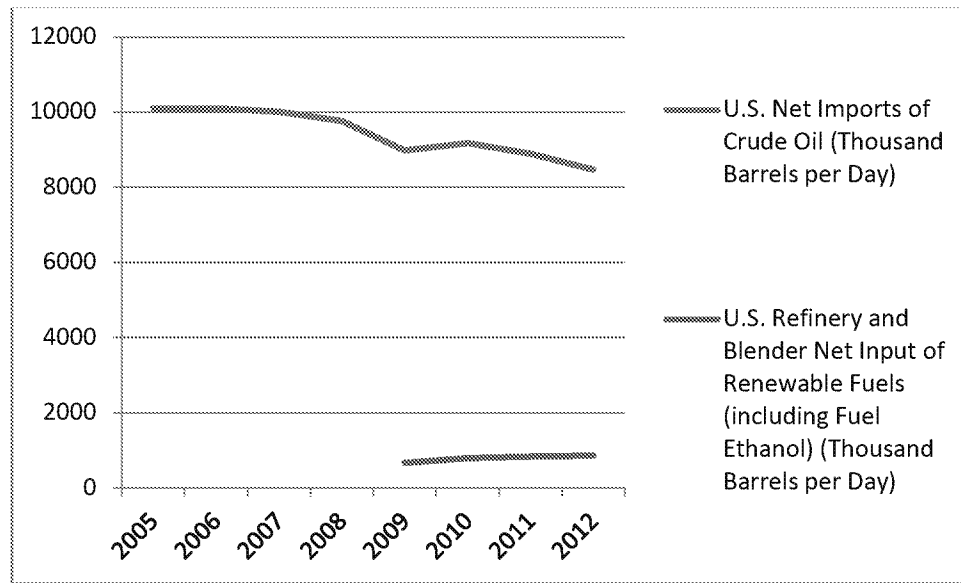
<sup>150</sup> BIO data. (Appendix LXII)

<sup>151</sup> "EPA proposes 2014 Renewable Fuel Standard, with EIA to provide input to the final rule," This Week In Petroleum, Nov. 20, 2013.

<sup>152</sup> EIA, Short Term Energy Outlook, Jan. 2014. [http://www.eia.gov/forecasts/steo/pdf/steo\\_full.pdf](http://www.eia.gov/forecasts/steo/pdf/steo_full.pdf). (Appendix LXIII)



Figure 9: Oil imports have been displaced by renewable fuels



Source: EIA

**d. EPA's proposal will increase greenhouse gas emissions in 2014; methodology establishes precedent for substantial foregone reductions through 2022**

The greenhouse gas intensity of petroleum fuels, measured in carbon dioxide equivalents (CO<sub>2</sub>e), has grown worse since 2007.<sup>153</sup> Nevertheless, the 2007 baseline for these fuels remains enshrined in the RFS and all renewable fuels are required to demonstrate a reduction in greenhouse gases compared to this baseline. The intent of the RFS was to ensure that biofuels reduced U.S. transportation sector emissions of greenhouse gases from the 2007 level. Biofuels have a clear incentive to improve their greenhouse gas intensity.

By lowering the overall and advanced RVOs relative to 2013, the proposed rule would, if implemented, result in the use of additional petroleum in 2014 compared to 2013, and automatically increase greenhouse gas emissions. EPA's proposal results in an estimated increase of 6.1 million metric tons of CO<sub>2</sub>e compared to 2013 [see Table 1]. This represents a mandated increase of over 27 million metric tons of CO<sub>2</sub>e relative to statutory levels. The net increase in CO<sub>2</sub>e emissions resulting from the proposed rule is equivalent to adding 5.6 million additional vehicles to the roads. The table below assumes EPA estimates for the greenhouse gas intensities of various biofuel options, but 2012 greenhouse gas intensities for gasoline and diesel blendstocks estimated by Wang and colleagues.

<sup>153</sup> Wang, M., J. Han, J. Dunn, H. Cai, and A. Elgowainy, 2012, "Well-to-Wheels Energy Use and Greenhouse Gas Emissions of Ethanol from Corn, Sugarcane and Cellulosic Biomass for US Use," Environmental Research Letter, 7 (2012) 045905 (13pp)





Table 1: Greenhouse Gas Emissions for 2013 and Estimates for 2014 Under Proposed Rule

Source of Emissions	GHG Emissions/Year			Changes in GHG Emissions from 2013 (thousand tonnes CO <sub>2</sub> e)	
	2013	2014	2014	2014	2014
		Proposed RFS	Legislated RFS	Proposed RFS	Legislated RFS
Gasoline blendstock	1,394,363	1,387,719	1,345,929	-6,643	-48,434
Petroleum diesel	685,039	704,068	704,068	19,029	19,029
Ethanol/Conventional Biofuel: corn ethanol	81,651	76,917	85,201	-4,733	3,550
Biomass-based Diesel: soybean biodiesel	6,456	6,456	6,456	0	0
Unspecified advanced biofuel: Brazilian sugarcane ethanol	2,313	704	7,165	-1,609	4,852
Cellulosic biofuel: corn stover ethanol	-13	18	18	12	12
<b>Total</b>	<b>2,169,809</b>	<b>2,175,883</b>	<b>2,148,837</b>	<b>6,055</b>	<b>-20,992</b>

Source: BIO



According to a recent analysis using similar assumptions<sup>154</sup>, if EPA's proposed new methodology is applied in 2022, when statutory levels of biofuel use reach 36 billion gallons, the country will forego additional emission reductions in 2022 of more than 168 million metric tons CO<sub>2</sub>e relative to previously established methodology (i.e. cellulosic volumes adjusted, but overall and advanced volumes maintained.) This is equivalent to the emissions of more than 35 million additional vehicles in 2022. Cumulative foregone emissions reductions over the period 2014-2022 approach 1 billion metric tons CO<sub>2</sub>e. EPA's proposal reduces emissions from conventional ethanol and holds stable emissions from biodiesel by limiting their use. However, it cuts short the emission reduction potential of additional advanced biofuels by limiting market space for them and guaranteeing more market space for petroleum fuels.

The increase in emissions has a social cost. According to the Interagency Working Group on Social Cost of Carbon, that cost is approximately \$37 per ton.<sup>155</sup> The 27 million ton net increase in CO<sub>2</sub>e emissions next year caused by EPA's proposal would come at cost of \$999 million to the United States. The emissions and social costs compound over time. EIA projects an increase in gasoline use in 2015, before consumption declines through 2022. Diesel consumption rises slowly through 2022, from 55.2 billion gallons in 2014 to 61.5 billion gallons in 2022, according to EIA.<sup>156</sup> If EPA implements its new methodology for determining volumes of biofuel under the RFS, and cellulosic biofuel investment is undercut, the increases in diesel consumption will result in increased petroleum (above 2013 volumes) use through 2019. As a result, GHG emissions will spike in 2015 and 2016, returning to levels below 2013 only after 2019. By maintaining the statutory levels of renewable fuel use, EPA can ensure that U.S. emissions from the transportation sector remain below 2013 levels and rapidly decline through 2022.

#### **a. RIN prices do not relate the costs of reducing greenhouse gas emissions**

In interagency comments on the draft proposed rule, Council of Economic Advisers reviewers suggest that the price of RINs be evaluated as the cost of reducing greenhouse gas emissions by displacing petroleum with biofuels.<sup>157</sup> The reviewers suggest that the calculation for biodiesel should include both the higher cost of biodiesel and the cost of the D4 RIN. However, this is incorrect. RINs could, in limited circumstances, help recoup a portion of the costs of substituting a higher priced renewable fuel for petroleum, but not indefinitely. A simple back of the envelope calculation of the portion of a RIN price that correlates to the value of reducing greenhouse gas emissions would be:

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<sup>154</sup> Winters, P. "Estimating GHG Emissions from Proposed Changes to the Renewable Fuel Standard through 2022." Unpublished paper, Jan. 2014. (Appendix LXIV)

<sup>155</sup> Interagency Working Group on Social Cost of Carbon, Technical Support Document: -- Technical Update of the Social Cost of Carbon for Regulatory Impact Analysis -- Under Executive Order 12866, Rev. Nov. 2013. Using the 3% discount rate average.

<sup>156</sup> U.S. Energy Information Administration, Annual Energy Outlook 2014 Early Release, Report No.: DOE/EIA-0383ER(2014), Dec. 16, 2013.

<sup>157</sup> Interagency comments Part 1: Comments on the 8/26/13 version of the NPRM, provided by OMB and representing interagency review, <http://www.regulations.gov/contentStreamer?objectId=0900006481488e91&disposition=attachment&contentType=pdf> (Appendix LXVI)



$$RIN = (SR \times GHG) \times SCC$$

Where

*RIN = dollar price of RINs*

*SR = statutory reduction percentage for the type of RIN*

$$D3 = 0.6$$

$$D4 = 0.5$$

$$D5 = 0.5$$

$$D6 = 0.2$$

$$D7 = 0.6$$

*GHG = the emissions from gasoline or diesel in tons/gallon*

*And SCC = the social cost of carbon per ton.*

By this measure, the use of corn ethanol has been a bargain for the United States and for obligated parties since 2008, since the RIN price was substantially below the social cost of carbon per gallon of gasoline.

The calculation above and in the comments does not include the value of reducing imports of oil, another goal of the RFS and one that is not included in the social cost of carbon. Verleger estimates this value at \$15 per barrel.<sup>158</sup> Additional estimates of the social benefits of reducing petroleum use – such as reduced military spending to protect oil trade routes – could be included in the overall calculation.

Further, there is no basis for utilizing such a calculation in the statute. Congress in fact included limits on the price of D3 and D7 RINs by establishing the cellulosic waiver credit. The value is set against the wholesale price of gasoline.

The suggestion to calculate RIN prices along these lines follows from an incorrect premise that RIN prices represent the cost to refiners of including renewable fuels in the fuel supply. RIN prices are instead determined by supply and demand, where demand is determined by the RVO and supply is determined by the blending of biofuels. The price of RINs, therefore, can be seen as the cost of complying with the law without actually including renewable fuels in the fuel supply.

## **IX. Conclusion**

The RFS is the nation's only long term energy policy. The current RFS goals from the 2007 EISA have only been in place for five-years – just one-third of the Standard's 15 year ramp up. Unfortunately, implementation of the standard has been slowed – not just by the economic downturn beginning in 2008, but by a number of regulatory delays, including EPA's 2013 rulemaking and approval of new pathways for cellulosic and advanced biofuels.

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<sup>158</sup> Philip K. Verleger, "Commentary: Renewable Fuels Legislation Cuts Crude Prices." PKVerlegerLLC.com, Sept. 23, 2013. [http://www.pkverlegerllc.com/assets/documents/130923\\_Commentary1.pdf](http://www.pkverlegerllc.com/assets/documents/130923_Commentary1.pdf) (Appendix LI)



If EPA were to finalize the proposed rule, it would be ignoring its own past precedent on the RFS and the clear language in the statute. The reductions in this proposed rule would have a detrimental impact on the nation's economy, in particular in small rural communities where biofuel facilities provide high skill jobs. It also puts the Nation's energy security at risk, by increasing our dependence on dirtier, foreign sources of oil. The rule will also have an adverse impact on the environment by increasing greenhouse gas emissions through the use of more oil, which is becoming dirtier due to its composition and more difficult extraction methods.

There are several solutions to the blend wall, including the use of higher blends of biofuels, greater distribution of biofuels, increased production of flex fuel vehicles, and greater use of drop-in fuels. Market economics under the RFS program are already driving investment in each of these options, and the EPA can anticipate a rapid increase in availability of both higher ethanol blends and drop-in alternatives as a result – but only to the extent obligated parties provide market access to these fuels. Unfortunately, many of these solutions are currently unattainable due to barriers to the marketplace erected by obligated parties. To overcome these barriers, EPA must maintain the RVOs under the RFS. Lowering mandated volumes would remove any market pressure to utilize higher blends of biofuels and drive investment in the infrastructure necessary to deliver these fuels. If the RFS is allowed to function, consumers will benefit with cheaper, cleaner fuels at the pump, and the nation as a whole will benefit from a domestically produced fuel that reduces GHG emissions and does not come from volatile parts of the world.

Sincerely,

A handwritten signature in black ink, appearing to read "Brent Erickson", with a stylized flourish at the end.

Brent Erickson  
Executive Vice President  
Industrial and Environmental Section  
Biotechnology Industry Organization

# IB Insights – 10th Anniversary Special Report

## Estimating Greenhouse Gas Emissions from Proposed Changes to the Renewable Fuel Standard through 2022

Brent Erickson, Matt Carr, and Paul Winters

Industrial & Environmental Section, Biotechnology Industry  
Organization (BIO)

### Introduction

**T**he US Environmental Protection Agency (EPA) has proposed a significant change to the US Renewable Fuel Standard (RFS) for 2014 and beyond, which will have an impact on greenhouse gas (GHG) emissions. We have used GREET1.2013 data and the US Energy Information Administration (EIA) projections to estimate the change in GHG emissions, measured in carbon dioxide equivalents (CO<sub>2</sub>e), between the statutory RFS volumes and the newly proposed RFS methodology through 2022. Cumulatively, the lowering of required biofuel volumes will result in nearly 1 billion metric tons of additional emissions when compared to the statutory RFS numbers. Following is a discussion of the goals and evolution of the RFS, how it works, the metrics and process we used to model GHG emissions based on the EPA's proposed changes to the RFS, our calculations of the estimated emissions impact of the proposed RFS changes, and the implications of those results.

As the basis for modeling GHG emissions we used data from the latest version of the fuel lifecycle model developed at the Argonne National Laboratory, GREET—The Greenhouse Gases, Regulated Emissions, and Energy Use in Transportation Model. The GREET model is used to evaluate various vehicle and fuel combinations on a full fuel-cycle/vehicle-cycle basis. The GREET model comprises more than 100 fuel pathways

(including petroleum, natural gas, biofuels, hydrogen, and electricity produced from various energy feedstock sources), stimulates three vehicle classes (passenger cars, Light Duty Truck 1 and 2), and includes more than 80 vehicle/fuel systems that cover multiple different vehicle technologies. Our use of this data allows us to aggregate average emissions from various fuel choices and compare differing levels of biofuel and petroleum blendstock use over time.

The RFS was first established in 2005 to mandate the use of renewable transportation fuels. It is part of the Clean Air Act and is administered by the EPA. The program was expanded in 2007 to ensure that the federally mandated use of renewable fuels achieved measureable reductions in GHG emissions as they displaced petroleum fuels. Broadly, the goals of the program are to reduce both GHG emissions from the US transportation sector and the nation's reliance on imported oil by displacing petroleum fuels. The RFS statute establishes annually increasing requirements for renewable fuels to be produced and used in the US—rising to 36 billion gallons in 2022.

The EPA finalized the administrative rules to enforce the expanded RFS in March 2010. Through 2013 the EPA issued annual rules that consistently increased, year-over-year, the mandated amount of biofuel to be used in the US. In November 2013, however, the EPA proposed a rule that would reduce biofuel use in 2014 compared to 2013. The agency further indicated that it would follow a newly proposed use-constrained methodology for setting the annual mandates in future rulemakings, through 2022. The proposal is subject to public comment and review prior to a final rulemaking.

Because the US is projected to consume more transportation fuel in 2014 than in 2013, the requirement for fewer gallons of renewable fuel will increase use of petroleum fuels. The EPA did not include an analysis of the impact on GHG emissions in its proposed rule for 2014. However, given the statute's stated goals, such an analysis is necessary. We have modeled the changes in GHG emissions, measured in carbon dioxide equivalents, associated with the EPA's proposed methodology for 2013 through 2022 using GREET1.2013 data and the US EIA projections for transportation fuel use.

We present the results of this modeling to illustrate to the industrial biotechnology community how proposed changes to the RFS would affect US GHG emissions in the future. This estimate is intended to inform the EPA of one of the potential impacts of its proposed rule, allowing for appropriate changes

#### EDITOR'S NOTE:

Some of the information and conclusions included in this article were presented in the report "Estimating GHG Emissions from Proposed Changes to the Renewable Fuel Standard through 2022," submitted to the Environmental Protection Agency as Appendix LXIV of Comment submitted by Brent Erickson, Executive Vice President, Industrial and Environmental Section, Biotechnology Industry Organization (BIO), [www.regulations.gov/contentStreamer?objectId=0900006481530edd&disposition=attachment&contentType=pdf](http://www.regulations.gov/contentStreamer?objectId=0900006481530edd&disposition=attachment&contentType=pdf)

## ERICKSON, CARR, AND WINTERS

before the final rulemaking. The EPA could perform a similar analysis, using its own modeling of GHG impacts of various fuel choices.

### How the RFS Works

The statute establishes a set of nested Renewable Volume Obligations (RVOs) for use of cellulosic biofuels, biomass-based diesel (BBD), and unspecified advanced and conventional renewable fuels.<sup>1</sup> Figure 1 depicts the nested structure of the RVOs. Both the BBD RVO and the cellulosic RVO are sub-categories of the advanced RVO. As such, biomass-based diesel and cellulosic fuels can be used to meet the entire advanced and total RVOs. But any qualifying advanced biofuel (transportation, jet, or heating fuel) can be used to meet the advanced RVO once the specific BBD and cellulosic RVOs are met. Likewise, any advanced biofuel can be used to meet the total RVO, but the portion not set aside for advanced can be met with conventional biofuels (defined as renewable fuels, such as ethanol from corn).

To meet the cellulosic RVO, a biofuel must reduce GHG emissions on a lifecycle basis by at least 60% compared to the 2007 baseline for petroleum gasoline, and be derived from a qualifying biomass feedstock. Likewise, biomass-based diesel and all other advanced biofuels must reduce GHG emissions by 50% and be derived from a qualifying source of biomass. Conventional fuels must reduce GHG emissions by 20% compared to the same baseline. The nested RVOs are designed to achieve measurable reductions—not merely to slow growth—in GHG emissions associated with transportation, jet, and heating fuels, with greater reductions achieved each year.

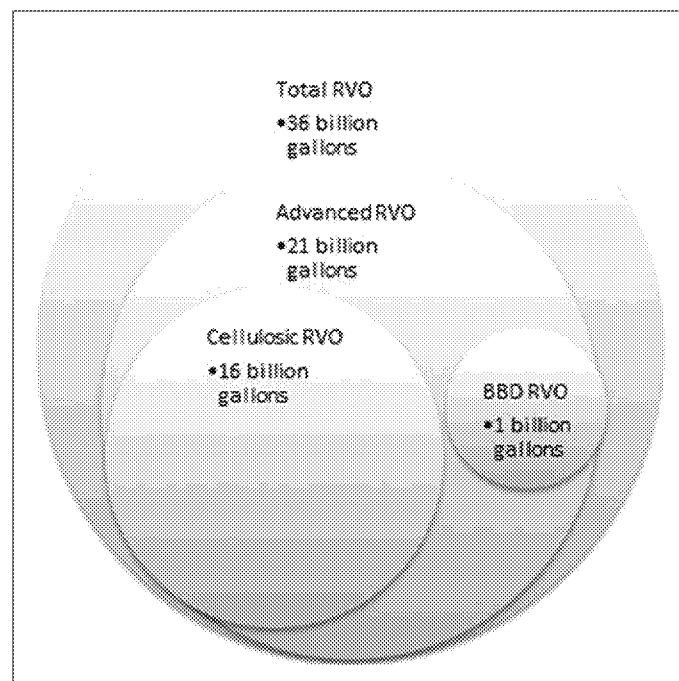


Fig. 1. Nested structure of 2022 statutory Renewable Volumes Obligations (RVOs).

The statutory RVOs are displayed in Table 1. Of the total T1 obligation, at least 1 billion gallons must be biomass-based diesel and an annually increasing volume must be qualifying gallons of cellulosic biofuel. Though the statutory volumes of cellulosic biofuel grow to 16 billion gallons in 2022, the EPA is required to reset the annual RVO to the projected available quantity. When the EPA waives the statutory cellulosic RVO to the projected available volume, it may reduce the overall and advanced RVOs by up to the same amount. Each year since 2010, the EPA has waived nearly all of the cellulosic RVO because to date cellulosic fuels have been commercially available only in very limited quantities.

But the EPA has maintained the statutory overall advanced and total RVOs. The EPA has set the annual RVOs at the maximum achievable levels of production of renewable fuels, taking into account the availability of compliance credits from prior years. Biomass-based diesel and other advanced biofuels have been produced, imported, and sold in sufficient quantities to meet the advanced RVO. Corn ethanol—which has proven to be a very cost-effective additive to fuel—has met the remaining portion of the total RVO.

### Modeling Emissions from EPA's Proposed Changes to the RFS

The EPA's proposed 2014 Standards for the RFS Program would set aside the statutory RVOs and establish a new methodology for determining the annual requirements for renewable fuel use.<sup>2</sup> Under this proposed new methodology, the EPA would first determine the amount of ethanol that could be used with gasoline in E10 and E85 blends. EPA would next project the amount of non-ethanol cellulosic, BBD and other advanced biofuels that could be produced and used within the US. As a third step, the agency would establish the cellulosic, BBD and undifferentiated advanced RVOs at or below the projected volumes available, to ensure that the ethanol content does not exceed the volume determined in the first step.

To begin to estimate the emissions impact of this change to the methodology for establishing RVOs, we first developed an estimate of the methodology's impact on fuel use. We utilized the volumes for 2014 published in the EPA's proposed rule, but then developed new estimates of the annual RVOs for 2015–2022 based on the EPA's proposed change to methodology. The EPA's new methodology limits ethanol use to 10% of the gasoline supply plus limited E85 blending and retailing infrastructure. The proposed methodology also limits non-ethanol biofuels and higher blends of ethanol to their established share of the market. We also developed an estimate of fuel use under the statutory volumes of the RFS.

To approximate market shares, we used the EIA projections of fuel use and the market penetration of various fuel sources for 2013–2022 from the 2014 Annual Energy Outlook, early release.<sup>3</sup> The EIA's projections are based on assumptions of current policy carried forward and market growth of existing technologies. We assume that use of ethanol and biodiesel directly displace consumption of gasoline blendstock and biodiesel.

Use of transportation fuels is expected to increase in 2014 compared to 2013.<sup>4</sup> Even though gasoline use will decline,

## GHG EMISSIONS RELATED TO RFS CHANGES

Table 1. Statutory Renewable Volumes Obligations (RVOs) under the Renewable Fuel Standard

YEAR	CELLULOSIC RVO	BIOBASED DIESEL RVO	TOTAL ADVANCED RVO	UNSPECIFIED ADVANCED (TOTAL – CELLULOSIC + BIOBASED DIESEL)	TOTAL RENEWABLE RVO	CONVENTIONAL BIOFUEL MAXIMUM (TOTAL – ADVANCED)
2009	0	0.50	0.60	0.10	11.10	10.50
2010	0.10	0.65	0.95	0.20	12.95	12.00
2011	0.25	0.80	1.35	0.30	13.95	12.60
2012	0.50	1.00	2.00	0.50	15.20	13.20
2013	1.00	1.00	2.75	0.75	16.55	13.80
2014	1.75	1.00	3.75	1.00	18.15	14.40
2015	3.00	1.00	5.50	1.50	20.50	15.00
2016	4.25	1.00	7.25	2.00	22.25	15.00
2017	5.50	1.00	9.00	2.50	24.00	15.00
2018	7.00	1.00	11.00	3.00	26.00	15.00
2019	8.50	1.00	13.00	3.50	28.00	15.00
2020	10.50	1.00	15.00	3.50	30.00	15.00
2021	13.50	1.00	18.00	3.50	33.00	15.00
2022	16.00	1.00	21.00	4.00	36.00	15.00

diesel use is expected to increase in 2014. Through 2022, the EIA projects overall transportation fuel consumption to decline. Gasoline consumption is expected to decline by nearly 10%, from 132.8 billion gallons in 2014 to 121.1 billion gallons in 2022. Diesel fuel consumption is expected to increase, from 55.2 billion gallons in 2014 to 61.5 billion gallons in 2022. The decline in gasoline use will more than offset the increase in diesel use in 2022, resulting in an overall decrease in transportation F2 fuel use. These estimates are presented in *Figure 2*.

The EIA also projects E85 use to grow 20-fold from its current level of 153.3 million gallons to nearly 3.1 billion gallons per year by 2022. Production and use of biodiesel remains unchanged from 2014 to 2022. Given its cost-competitiveness, we would expect corn ethanol to be the first choice of renewable fuel used in E10 gasoline and E85 blends, filling the undifferentiated overall RVO to the maximum extent, just as it has in past years. However, we used the EIA estimates of imported ethanol as an estimate of advanced biofuel.

To estimate emissions through 2022, we assume a continuation of the EPA's newly proposed methodology of limiting RVOs to the estimated market use of various biofuel categories. We also assume no additional cellulosic biofuel growth beyond the 100 million gallons of capacity currently in production or under construction, due to the uncertainty for investors created by the change in the rules.

Under the model, in 2022, the EPA could be expected to establish the total amount of ethanol to be used in the market at 15.2 billion gallons—equivalent to 10% of estimated gasoline use of 121.1

billion gallons plus market growth of E85, equivalent to 3.1 billion gallons. The EIA projects that 1.1 billion gallons of ethanol will be imported, so emissions are estimated as though these gallons make up the undifferentiated portion of the advanced RVO. The overall advanced RVO is therefore estimated to be 2.6 billion gallons and the total RVO is estimated at 16.7 billion gallons. The EIA also projects that 61.5 billion gallons of petroleum diesel will be used. The EPA would be expected to establish the BBD RVO at 1.4 billion gallons, based on steady market demand from 2014 to 2022, directly displacing an equivalent volume of petroleum diesel.

We modeled the resulting emissions for 2014 through 2022 under both the statutory RFS volumes and the modeled RFS volumes, using the GREET1.2013 model developed by Dr. Michael Wang and others at Argonne National Labs. Wang estimates that because the United States now imports more oil from Canada and Venezuela than it did in 2007, and more of Canada's oil exports come from oil sands, the GHG intensity of petroleum fuels has increased. Comparatively, the GHG intensity of biofuels is decreasing.<sup>5</sup> Updated estimates from 2012 of the GHG intensity of petroleum and biofuels, measured in CO<sub>2</sub>e, were incorporated in the latest GREET model.

The GREET1.2013 model estimate of GHG emissions for petroleum fuels is 94 grams CO<sub>2</sub>e per megajoule (gCO<sub>2</sub>e/MJ) on average for gasoline blendstock and 96 gCO<sub>2</sub>e/MJ for diesel. EIA projects that US imports of petroleum from Canada will increase through 2022, even while overall petroleum import levels decline. However, the GHG intensity of petroleum in 2022 is not captured or estimated in GREET1.2013.

## ERICKSON, CARR, AND WINTERS

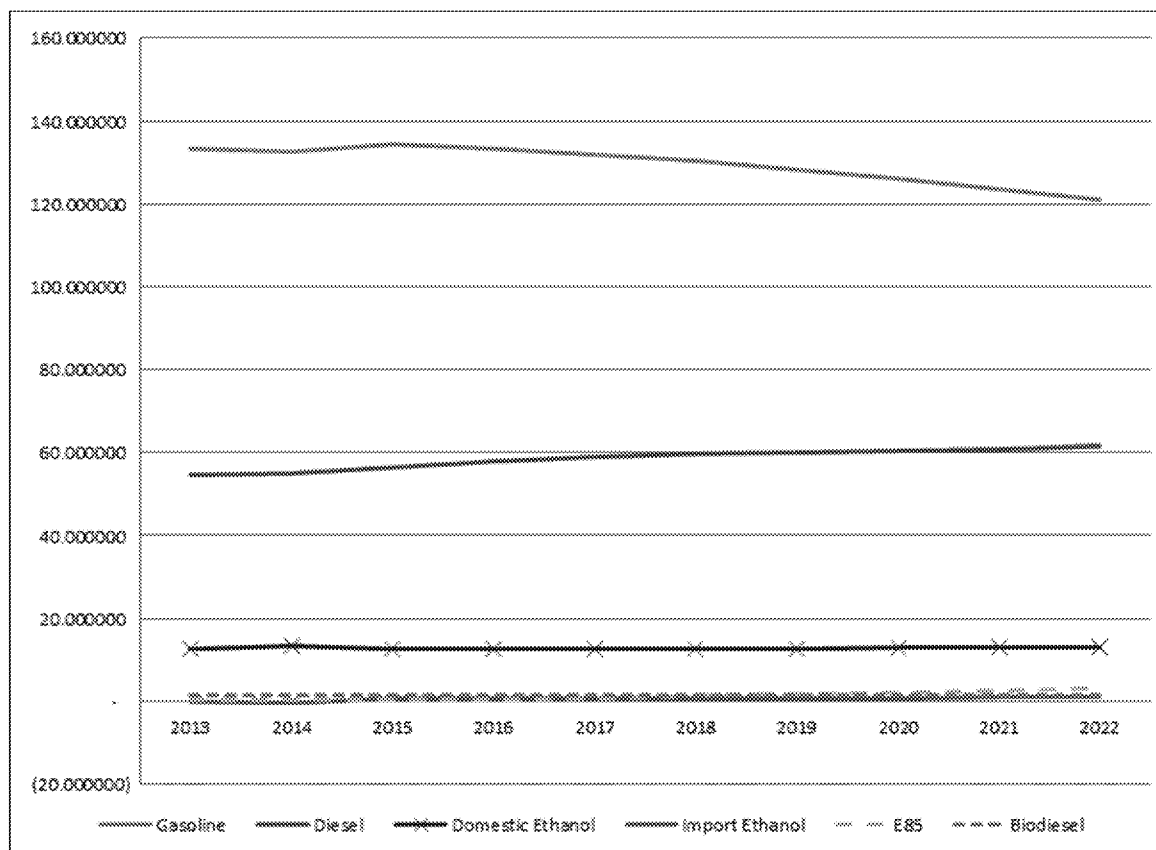


Fig. 2. Liquid fuel consumption, 2013–2022.

The GREET value for corn ethanol of 65 gCO<sub>2</sub>e/MJ, which includes a measurement of land use change, is used to estimate emissions for the conventional biofuel RVO. A soybean biodiesel value of 23 gCO<sub>2</sub>e/MJ is used to estimate emissions from the BBD RVO; and a Brazilian sugarcane value of 35 gCO<sub>2</sub>e/MJ

is used to estimate emissions from the advanced biofuel RVO. The GREET value for corn stover ethanol of 13 gCO<sub>2</sub>e/MJ, with land use change, is used to estimate emissions from the cellulosic biofuel RVO. The volume of displacement of gasoline by ethanol and diesel by biodiesel is adjusted by the difference in

Table 2. Estimated Changes in Greenhouse Gas Emissions (GHG) from 2013 to 2014

EMISSIONS SOURCE	GHG EMISSIONS (THOUSAND METRIC TONS CO <sub>2</sub> e)			CHANGES IN GHG EMISSIONS FROM 2013	
	2013	2014	2014	2014	2014
		PROPOSED RENEWABLE VOLUMES OBLIGATIONS (RVOs)	STATUTORY RVOs	PROPOSED RVO	STATUTORY RVO
Gasoline blendstock	1,394,363	1,387,719	1,342,689	–6,643	–51,674
Diesel	685,039	704,068	707,718	19,029	22,678
Conventional (corn ethanol)	72,003	67,829	75,134	–4,174	3,131
Biobased diesel (soy biodiesel)	3,757	3,757	2,935	0	–822
Advanced (Brazilian sugarcane ethanol)	2,238	681	2,826	–1,557	588
Cellulosic (corn stover ethanol)	7	18	1,897	12	1,891
Total	2,157,407	2,164,073	2,133,199	6,666	–24,208



## GHG EMISSIONS RELATED TO RFS CHANGES

**Table 3. Estimated Changes in Greenhouse Gas Emissions from 2013 to 2014 Under Varying RVO Assumptions**

EMISSIONS SOURCE (THOUSAND METRIC TONS CO <sub>2</sub> e)	PROPOSED RENEWABLE VOLUMES OBLIGATIONS (RVOs)	STATUTORY RVOs	PROPOSED RVOs FOR BIOBASED DIESEL AND CELLULOSIC, STATUTORY TOTAL ADVANCED	PROPOSED RVOs FOR BBD AND CELLULOSIC, EQUIVALENT REDUCTION OF ADVANCED
Gasoline Blendstock	-6,643	-51,674	-48,434	-31,623
Diesel	19,029	22,678	19,029	19,029
Conventional (Corn ethanol)	-4,174	3,131	3,131	3,131
Biobased diesel (soy biodiesel)	0	-822	0	0
Advanced (Brazilian sugarcane ethanol)	-1,557	588	4,695	588
Cellulosic (corn stover ethanol)	12	1,891	12	12
Total	6,666	-24,208	-21,568	-8,864

heating values. To enable comparison, all values are converted to a gasoline gallon equivalent of gCO<sub>2</sub>e.

### Our Estimates of the Emissions Impact

If the proposed rule is finalized without changes, the use of biofuels will decline in 2014, compared both to 2013 and to the volumes specified in the statute. The use of additional petroleum in 2014, compared to 2013, will automatically increase GHG emissions. The EPA's proposed RVOs for 2014 result in an estimated increase of 6.66 million metric tons of CO<sub>2</sub>e from 2013 to 2014. If the EPA were to maintain the RFS at the statutory volumes in 2014, the US would achieve an estimated reduction of emissions of 24.2 million metric tons CO<sub>2</sub>e. The results of the modeling of GREET1.2013 values are displayed in *Table 2*.

The statutory volume of 1 billion gallons of BBD is less than the proposed volume for 2014 of 1.28 billion gallons, which results in additional use of petroleum diesel under the statute when compared to the proposal. Additionally, the EPA proposes to lower the cellulosic biofuel RVO to the projected available volume of 17 million gallons, as required. If these values are substituted for the statutory volumes, allowing the overall advanced RVO to remain at the statutory level as the EPA has done in prior years, the achieved reduction in GHG emissions would be 21.6 million metric tons CO<sub>2</sub>e. If the EPA were to reduce the advanced and overall RVOs by the same amount as they reduce the cellulosic RVO, which they may do under their statutory authority, GHG emissions would be reduced by 8.9 million metric tons CO<sub>2</sub>e compared to 2013. These results are presented in *Table 3*. The EPA's proposed change in methodology results in a net increase of 28.2 million metric tons CO<sub>2</sub>e in 2014

**Table 4. Estimated GHG Emissions in 2022 under Varying Renewable Volumes Obligations (RVOs) Assumptions**

EMISSIONS SOURCE (THOUSAND METRIC TONS CO <sub>2</sub> e)	MODELED RVOs	STATUTORY RVOs	STATUTORY RVOs, WITH CELLULOSIC WAIVER AND STATUTORY TOTAL ADVANCED	STATUTORY RVOs WITH CELLULOSIC WAIVER AND EQUIVALENT REDUCTION OF ADVANCED
Gasoline Blendstock	1,224,097	1,070,680	1,008,133	1,192,095
Diesel	783,572	706,675	775,062	775,062
Conventional (Corn ethanol)	73,569	78,264	78,264	78,264
Biobased diesel (soy biodiesel)	4,050	5,870	5,870	5,870
Advanced (Brazilian sugarcane ethanol)	3,109	8,479	53,417	8,479
Cellulosic (corn stover ethanol)	108	17,344	108	108
Total	2,088,506	1,887,313	1,920,855	2,059,879
Difference from 2013	-68,901	-270,094	-236,552	-97,529

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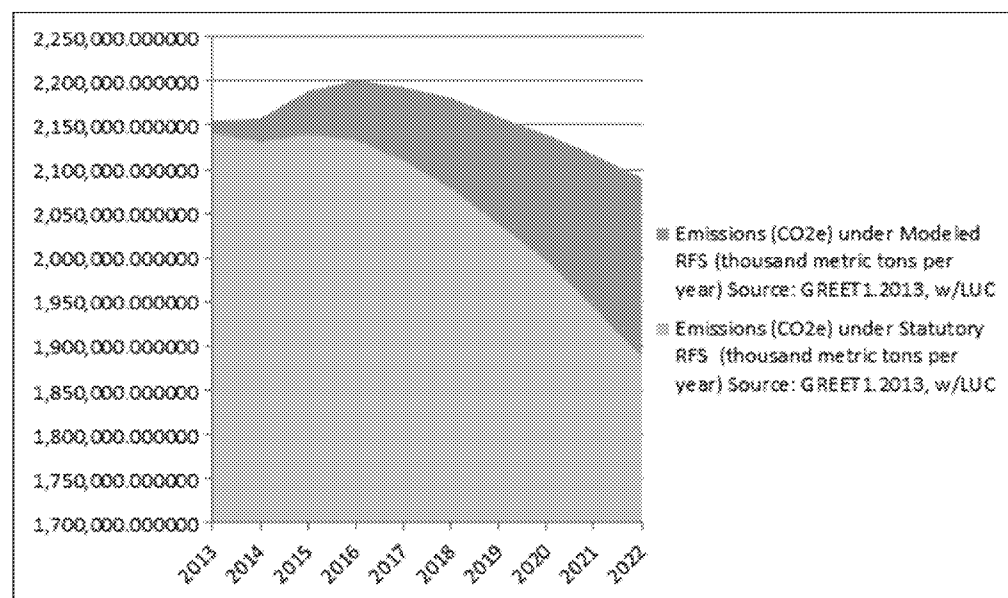


Fig. 3. CO<sub>2</sub>e emissions under statutory Renewable Fuel Standards (RFS) and modeled RFS biofuel levels.

relative to previously established methodology. This is equivalent to the emissions of 5.9 million additional vehicles.

If fuel use declines along the lines of the EIA projections through 2022, GHG emissions would fall from 2014 levels in 2022. However, with ongoing changes in the sources of US petroleum supply, the decline in emissions is not guaranteed. Use of more petroleum from Canada and from enhanced oil recovery technologies in the United States could increase emissions from each gallon of petroleum.

Under our assumptions for the modeled use of fuel in 2022, and using 2012 estimates of GHG intensity from GREET that include land use change, emissions would be expected to fall by 68.9 million metric tons of CO<sub>2</sub>e when compared to 2013. However, by not maintaining the statutory advanced and total RVOs, the EPA is foregoing additional emission reductions of more than 168 million metric tons CO<sub>2</sub>e relative to previously established methodology. This is equivalent to the emissions of more than 35 million additional vehicles. Results are presented in Table 4.

Cumulative foregone emissions reductions over the period 2014–2022 approach 1 billion metric tons CO<sub>2</sub>e. Additionally, due to a projected increase in gasoline consumption in 2015 and 2016 (compared to 2013), the change in methodology increases the use of petroleum fuels and associated emissions of greenhouse gases. Overall petroleum use does not fall below 2013 levels until 2019, increasing the emissions of greenhouse gases measured in CO<sub>2</sub>e, as shown in Figure 2.

## Conclusions

The EPA's proposal to change the methodology of setting the RVOs for the Renewable Fuel Standard will have an immediate impact on GHG emissions in 2014, since it will lower biofuel use as transportation fuel use increases. The EPA did not include an estimate of the greenhouse gas impact when it issued the proposal,

but may be required to do so for the final rule. Emissions can be modeled using the EPA's own estimates of the GHG intensity of various fuel options, but it is indisputable that an increase would occur. Only by maintaining the prior methodology for setting the RVOs, based on the availability of renewable fuel, can the EPA ensure a reduction in greenhouse gas emissions in 2014 compared to 2013.

The EPA should carefully consider the impact on CO<sub>2</sub> emissions in the transportation sector in assessing its proposed change in methodology. As fuel use declines through 2022, associated GHG emissions will naturally decline as long as the emissions intensity of various fuel choices remains stable. However, if the EPA's proposed new methodology is applied in 2022, when statutory levels of

biofuel use would reach 36 billion gallons, the country will forego additional emission reductions of more than 168 million metric tons CO<sub>2</sub>e relative to previously established methodology. This is equivalent to the emissions of more than 35 million additional vehicles. Cumulative foregone emissions reductions over the period 2014–2022 approach 1 billion metric tons CO<sub>2</sub>e.

The social costs of these additional emissions should be weighed carefully in any cost-benefit analysis of EPA's proposed change in methodology. According to the Interagency Working Group on Social Cost of Carbon, that cost is approximately \$37 per ton. The 6.66 million ton increase in CO<sub>2</sub>e emissions next year that would directly result from EPA's proposed reduction of biofuel use would come at a cost of \$246 million to the US. Foregoing the additional savings of 21.57 million metric tons of emissions in 2014 by not following past practice and maintaining the advanced and total pools at the maximum achievable volume would cost the US an additional \$798 million in lost opportunity. In contrast, recent analyses suggest little, if any, of the cost of RFS compliance is borne by consumers.<sup>6</sup> Even were the full cost of compliance passed on to consumers, biofuels would be a bargain for the US, since even at Renewable Identification Numbers (RIN) prices of \$1 per gallon, RIN costs remain substantially below the social cost of carbon saved per gallon of gasoline.

Brent Erickson is Executive Vice President, Industrial & Environmental Section, Biotechnology Industry Organization (BIO), Washington, DC

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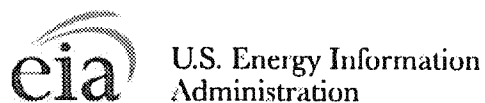
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## GHG EMISSIONS RELATED TO RFS CHANGES

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AU1 Please cite Fig. 3 in the text.

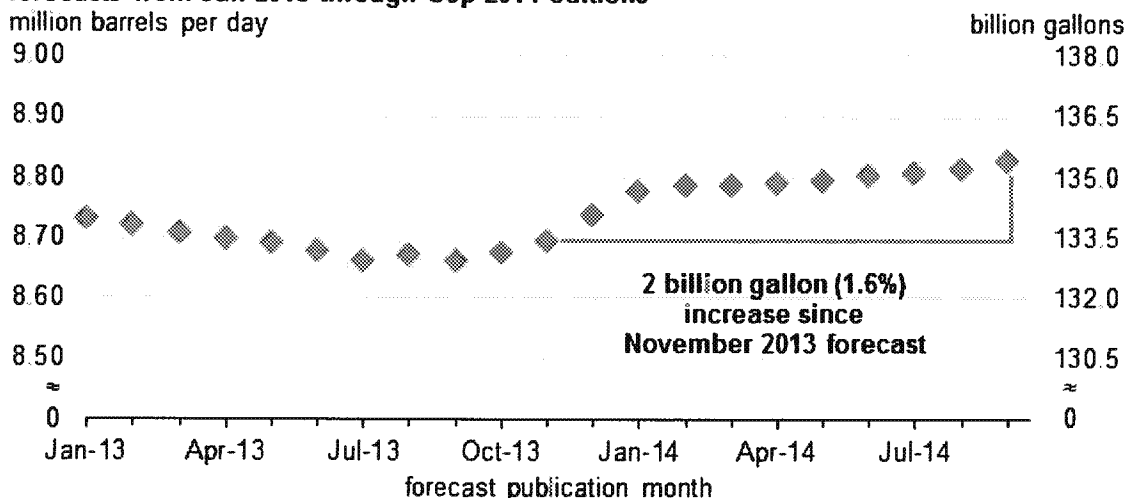


## Today in Energy

September 10, 2014

### EIA's forecast of 2014 gasoline use has risen 2 billion gallons (1.6%) in past 10 months

**Short-Term Energy Outlook forecast of 2014 gasoline consumption, forecasts from Jan 2013 through Sep 2014 editions**



**Source:** U.S. Energy Information Administration, *Short-Term Energy Outlook (STEO)*

EIA's short-term forecasts of gasoline consumption, which cover the current and upcoming calendar year, have risen over the past year. The latest *Short-Term Energy Outlook (STEO)*, released yesterday, expects 2014 gasoline consumption to be 8.82 million barrels per day (135.2 billion gallons), 0.13 million barrels per day (2 billion gallons) higher than last November's forecast, which was close to the average 2014 consumption forecast across the 12 editions of STEO published in 2013. The STEO gasoline consumption estimates include the volumes of ethanol contained in all gasoline-ethanol mixtures, including both E10 and higher blends.

As shown in the graph above, the STEO forecast of 2014 gasoline consumption was generally declining between January 2013 and September 2013, but has risen over the past year. The STEO estimates are used by industry as an indicator of market conditions and provide the starting point for EIA's longer term projections. The latest available STEO forecast is also the source for the estimates of gasoline demand that EIA provides the U.S. Environmental Protection Agency for its use in operating the Renewable Fuel Standard program as required under the Energy Independence and Security Act (EISA) of 2007.

Updates in the gasoline consumption forecast reflect changes in a number of key factors, such as gasoline prices, economic and employment trends, weather, demographics, changes in consumer behavior patterns, as well as new data on actual consumption.

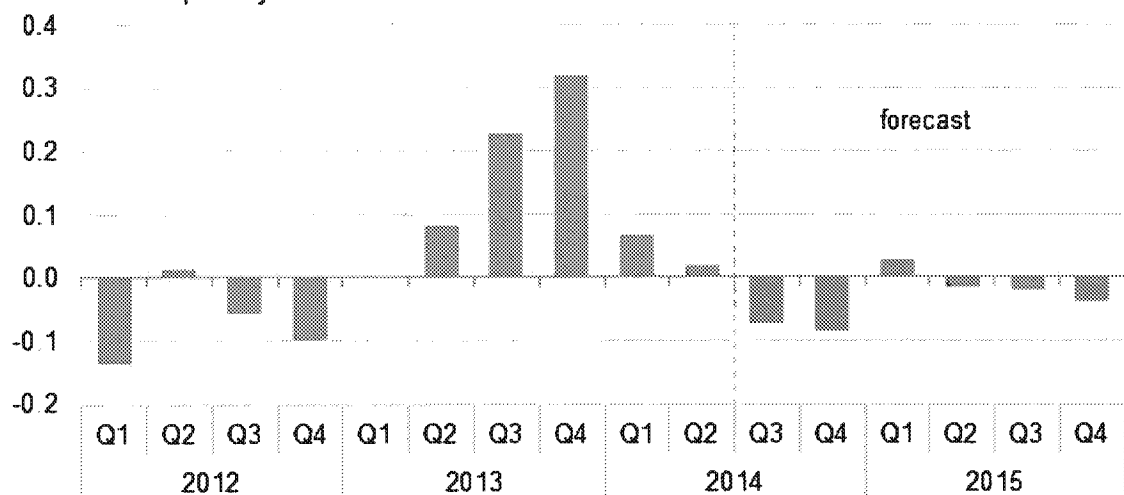
A comparison of the current STEO to the September 2013 edition shows only a 3 cent/gallon difference in the forecast for average gasoline prices. However, the latest forecast for the average unemployment rate in 2014 is 6.3%, well below the 7.3% year-ago forecast, while the forecast for average non-farm employment in 2014 increased by 1 million over the same interval.

Over time, EIA's gasoline forecasts for 2014 have increasingly reflected current gasoline consumption data from EIA's Petroleum Supply Monthly (PSM). The PSM measures product supplied, which is used as a proxy for consumption. EIA's latest forecast now has the benefit of monthly data for the first half of the year. However, the largest data-driven upward revisions to the 2014 gasoline consumption forecast data occurred late in 2013, before any 2014 data were available. During the first quarter of 2013, gasoline consumption increased by only 6,000 barrels per day (bbl/d) over the same period during 2012. By the fourth quarter of 2013 the year-over-year increase in gasoline consumption had risen to an average 320,000 bbl/d.

This increase in consumption did not persist for long. During first-quarter 2014, consumption averaged 66,000 bbl/d higher than the same period in 2013. (The Federal Highway Administration reports a similar increase of 62,000 bbl/d for the first quarter of 2014.) During the second quarter of 2014, consumption began to show year-over-year declines in May and June, with an average increase for the period of 20,000 bbl/d. EIA expects continuing year-over-year declines during the second half of 2014, averaging 79,000 bbl/d.

The general outlook for motor gasoline is for declining consumption as average new vehicle fuel economy continues to improve. As new cars replace less-efficient older cars, the increase in the average fleet fuel economy is expected to outpace the growth in the driving age population and vehicle miles traveled and put continuing downward pressure on gasoline consumption.

**Year-over-year change in gasoline consumption**  
million barrels per day



**Source:** U.S. Energy Information Administration, *Short-Term Energy Outlook (STEO)*, September 2014

**Principal contributor:** Tancred Lidderdale

## **Update: Estimated GHG Increase from Obama Administration Inaction on the 2014 RFS**

- **The “blend wall” should not be a consideration for setting the RFS, because the United States is using more transportation fuel in 2014 than previously projected.**
- **Inaction on the 2014 RFS regulatory rule will lead to increased GHG emissions of 21 million metric tons CO2 equivalent.**
- **The increased GHG emissions are equal to putting an additional 4.4 million cars on the road or opening 5.5 new coal-fired power plants.**

In November 2013, the U.S. Environmental Protection Agency (EPA) proposed waiving a substantial portion of the Renewable Fuel Standard (RFS) mandated volumes for 2014 and reducing the use of biofuels in U.S. transportation compared to 2013.<sup>1</sup> The Obama administration has not finalized the rule as of mid-September 2014, leaving obligated parties with the proposed reduction as guidance for the year.

Based on new transportation fuel demand data, the Biotechnology Industry Organization (BIO) is updating a study of the increase in greenhouse gas (GHG) emissions resulting from EPA’s proposed reduction in biofuel use, comparing it with potential biofuel use under the RFS methodology established in prior years.<sup>2</sup> BIO’s March 2014 published analysis demonstrated that if the United States reduced biofuel use when transportation fuel use was projected to increase, Americans would automatically use more petroleum and emit increased GHGs as a result.

Recent Energy Information Administration (EIA) estimates indicate that U.S. transportation fuel demand in 2014 did in fact increase and is already 2.5 billion gallons higher than projected in November 2013, when EPA’s proposal

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<sup>1</sup> Fed. Reg. 78(230), Friday, Nov. 29, 2013.

<sup>2</sup> Erickson, B., Carr, M., and Winters, P. Estimating Greenhouse Gas Emissions from Proposed Changes to the Renewable Fuel Standard Through 2022. *Industrial Biotechnology*. April 2014, 10(2): 57-63. doi:10.1089/ind.2014.1508.

was issued.<sup>3</sup> Because biofuel use is expected to increase only slightly in 2014 compared to 2013, the United States has missed the opportunity to achieve GHG emission reductions in 2014 through consistent RFS regulatory policy.

## Increasing Transportation Fuel Demand

The United States used 2 billion gallons more gasoline in both 2013 and 2014 than expected. On-road diesel use in 2014 is now projected to be half-a-billion gallons higher than previously expected, while 2013 diesel use fell almost 1 billion gallons below last year's estimates. A comparison of November 2013 and September 2014 projections from EIA's Short-Term Energy Outlook, in Table 1, demonstrates the changes in expected use.

**Table 1: EIA Transportation Fuel Use Projections for 2013 and 2014 (billion gallons)**

	<b>November 2013 Projection</b>		<b>September 2014 Projection</b>	
	<i>2013</i>	<i>2014</i>	<i>2013</i>	<i>2014</i>
<b>Gasoline</b>	133.83	133.22	135.52	135.21
<b>Diesel</b>	54.57	55.2	53.66	55.80
<b>Ethanol</b>	12.72	13.03	13.21	13.32
<b>Biomass-based Diesel</b>	1.38	1.38	1.59	1.47

Source: EIA Short-Term Energy Outlook.

EIA continues to project a downturn in gasoline demand and uptick in diesel demand through the second half of 2014, due to fuel efficiency standards. However, at the end of the third quarter of the year, gasoline production remains higher than the same period in 2013 while diesel production

<sup>3</sup> U.S. Energy Information Administration, *Short-Term Energy Outlook (STEO)*, September 2014.

remains lower.<sup>4</sup> And four-week average demand for gasoline remains higher than the same period in 2013.<sup>5</sup>

The increased demand for transportation fuels has also prompted EIA to raise its projections for ethanol and biodiesel use. However, it should be noted that EIA's projection of biomass-based diesel for 2014 is lower than the estimate of actual use in 2013. It should also be noted that EIA's recent estimates are considerably higher than those used by EPA in establishing the 2013 RFS rules, where they projected 132.8 gallons of gasoline and 51.76 gallons of diesel use for 2013.<sup>6</sup> At that time, EPA concluded that the E10 blendwall was not a barrier to compliance with the full statutory volumes of conventional and advanced biofuel called for in the RFS.

### **GHG Impact of EPA Inaction on the Final Rule**

Considering the increased estimates for transportation fuel (including biofuel) use, BIO reexamined its earlier conclusion that EPA's proposed cut to biofuel use in 2014 would raise GHG emission levels above 2013 levels as well as forego a significant achievable cut in emissions. EPA has not issued a final rule for 2014, leaving oil refiners and biofuel producers to follow the proposed rule as guidance and effectively guaranteeing that biofuel use in 2014 will fall to near the levels EPA proposed.

For our current analysis of the GHG impact, we utilize the estimate of gasoline, diesel, ethanol and biodiesel use in 2013 and projections for 2014 in EIA's September 2014 Short-Term Energy Outlook. We developed two scenarios for 2014, the first based on EPA's proposal from November 2013 and the second with estimated volumes based on a waiver of cellulosic biofuel and a corresponding increase in advanced biofuels. For the second scenario, we further assumed that biodiesel would be used to meet a portion of the unspecified advanced biofuel mandate, over and above the biomass-based diesel mandate. Based on the EIA estimates, our scenarios for petroleum and biofuel use for 2013 and 2014 are presented in Table 2.

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<sup>4</sup> U.S. Energy Information Administration, Weekly Petroleum Status Report, September 17, 2014. <http://www.eia.gov/petroleum/supply/weekly/>.

<sup>5</sup> U.S. Energy Information Administration, This Week in Petroleum, September 17, 2014. <http://www.eia.gov/oog/info/twip/twip.asp>.

<sup>6</sup> Fed. Reg. 78(58) Thursday, Aug. 15, 2013, p.49826.



**Table 2: Projected blendstock consumption in 2013 and under two scenarios in 2014 (billion gallons)**

	<b>2013</b>	<b>2014, with proposed RFS mandate</b>	<b>2014, with legislated RFS mandate</b>
<b>Gasoline Blendstock</b>	122.3	121.9	119.6
<b>Petroleum diesel</b>	52.1	54.5	54.1
<b>Conventional Biofuel</b>	12.4	13.0	14.4
<b>Biomass-based Diesel</b>	1.6	1.3	1.7
<b>Unspecified advanced biofuel</b>	0.83	0.27	1.18
<b>Cellulosic biofuel</b>	0.00	0.02	0.02

Using the scenarios above, we modeled GHG emissions using the GREET1.2013 model. Table 3 presents estimates of GHG emissions for 2013 and 2014 based on the projected consumption in Table 2.

**Table 3: Estimated Changes in GHG Emissions from 2013 to 2014 (thousand metric tons CO<sub>2</sub>e)**

	<b>2013</b>	<b>2014 Proposed RFS mandate</b>	<b>2014 Legislated RFS mandate</b>
<b>Gasoline blendstock</b>	1,415,033	1,410,611	1,383,885
<b>Petroleum diesel</b>	678,531	710,601	705,127
<b>Ethanol/Conventional Biofuel</b>	64,617	67,829	75,134
<b>Biomass-based Diesel</b>	4,680	3,757	4,990
<b>Unspecified advanced biofuel</b>	2,344	772	3,344
<b>Cellulosic biofuel</b>	1	18	18
<b>Total</b>	2,165,206	2,193,588	2,172,497

Newly modeled estimates of GHG emissions are higher across the board than in BIO's published March 2014 analysis, due to the estimated changes in transportation fuel use for both 2013 and 2014. It appears that it is no longer possible to achieve a year-over-year reduction in GHG emissions. The reduced estimate of petroleum diesel use and increased biodiesel use for 2013 created a larger reduction in GHG emissions in 2013 than can now be achieved in 2014. And while gasoline and diesel use have been rising in

2014, in the absence of a final rule oil refiners have blended ethanol and biodiesel only at rates consistent with EPA's November 2013 proposal. They cannot now go back and blend at higher rates.

Unless actual fuel use again changes from current estimates, the United States will see an increase in GHG emissions from 2013 to 2014.

## **Conclusion**

EPA must assess the GHG emissions impact of its regulatory decisions – or in this case, indecision. The difference between the levels of modeled GHG emissions that result from EPA's proposed volume obligations and those achievable through consistent enforcement of the RFS is more than 21 million metric tons of CO<sub>2</sub> equivalent. This amount of emissions is equal to putting an additional 4.4 million cars on the road or having current cars drive an additional 50.2 billion miles. It is also equal to the emissions of 5.5 new coal-fired electricity plants.<sup>7</sup>

In its RFS rule for 2013, EPA concluded that the refining industry would not encounter the blend wall until 2014 and enforced the statutory RFS volumes for advanced and conventional biofuels, even while waiving the cellulosic requirement. EPA subsequently proposed a reduction of the RFS for 2014 in consideration of the blend wall. It is now clear that gasoline demand was higher in 2013 and 2014 than EPA projected when it issued both the 2013 rule and the 2014 proposal. The United States is no closer to the so-called blend wall in 2014 than it was in 2013. In 2014, EPA could have maintained the RFS methodology it used in 2013 and previous years.

To achieve future reductions in greenhouse gas emissions from transportation, the United States must continue to displace petroleum fuels with advanced and cellulosic biofuels. Building advanced biofuel capacity requires investment and the assurance that the market will be open to these fuels. Maintaining a consistent, stable methodology for the RFS will pressure industry to find constructive solutions to the blend wall and achieve greenhouse gas emission reductions.

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<sup>7</sup> EPA, Greenhouse Gas Equivalency Calculator, <http://www.epa.gov/cleanenergy/energy-resources/calculator.html>. Accessed Sept. 19, 2014.



May 15, 2014

The Honorable Barack Obama  
President  
United States of America  
The White House  
Washington, DC 20500

**RE: Maintaining the Methodological Integrity of the Renewable Fuel Standard (RFS)**

Dear Mr. President,

On behalf of the Advanced Ethanol Council (AEC), the Biotechnology Industry Organization (BIO) and the signatories listed below, we are writing to express our concern about the Administration's impending decision regarding the Renewable Fuel Standard (RFS).

As you know, the RFS requires oil companies to blend increasing volumes of low carbon biofuels over time. The RFS is necessary because the highly consolidated, vertically integrated oil industry is not otherwise going to cede market share to renewable fuels. It is an unfortunate reality that current fuel markets do not properly reward innovation, and that any effort to curb oil dependence and reduce carbon emissions in the sector will require effective policies like the RFS.

The issue in question is the Administration's proposal to drastically cut the RFS blending targets and fundamentally change how the RFS works. While we are hopeful that the Administration recognizes that its proposed cuts are too aggressive, and intends to increase the volumes in the final rule, it is not clear that the Administration yet recognizes that its proposal changes how the RFS works at a fundamental level, and that this methodological shift would effectively undercut advanced biofuel projects under development.

Almost 40 advanced biofuel companies, which together produce the lowest carbon fuel in the world, submitted a letter to your office in late 2013 expressing concern about your new methodology.<sup>i</sup> To reduce the 2014 blending requirements and volumes in future years, EPA is proposing to use its general waiver authority based on "inadequate domestic supply." But EPA is putting forward a novel interpretation of the word "supply" to mean the ability of current infrastructure to deliver renewable fuel *blends* to consumers, instead of the available supply of renewable fuel to obligated parties. We believe that this new interpretation is inconsistent with the plain meaning of the statute and its legislative history. But the bigger issue is that this interpretation has the practical effect of handing the future trajectory of the RFS to the oil industry by virtue of the fact that the oil industry itself controls the distribution of fuel to consumers. Simply put, the proposal converts obligated parties under the Clean Air Act into non-obligated parties.

As part of the deliberative process, it is critical for the Administration to understand exactly who this policy shift would impact. Some have suggested that this methodological change only impacts first generation biofuels because it is being proposed in response to concerns about that compliance pool. But the agency's shift is actually systemic in nature, and therefore applies to how investors would look

at all types of qualifying biofuel under the RFS. The threat that oil companies could simply ignore the RFS vastly increases supply-chain risk for *new* projects, in addition to those already in the ground. Given that more than 90 percent of future blending obligations under the RFS are for advanced biofuels, the Administration's new methodology would actually scuttle U.S. investment in advanced, low-carbon biofuels in direct conflict with the Climate Action Plan and your Administration's goals with regard to reducing oil dependence and promoting advanced biorefineries via USDA and DOE programs.

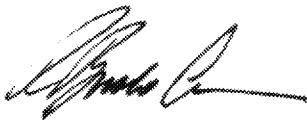
We are aware of the oil industry's efforts to characterize the program as a political risk and a substantive failure. But the program is the primary focus of incumbents because it is working. The broader biofuels industry has produced enough conventional and advanced biofuels to meet the statutory requirements every year. It is now clear that the carbon-cutting and job-creating benefits of the RFS come without an increase in gas prices, even with higher RFS/RIN credit prices.<sup>ii</sup> In fact, the RFS is generally credited with reducing gas prices by introducing billions of gallons of American-made renewable fuel into world fuel markets during times of extreme tightness between supply and demand.<sup>iii</sup>

But with recent announcements in mind, we are concerned about the current proposal's impact on climate change. Our industry has invested billions of dollars in the development and commercial deployment of ultra-low carbon biofuels during your Administration alone. These investments were made based on the expectation that when we succeed, the RFS will be maintained as a mechanism to open the market for our fuels. The current proposal would break that promise by allowing incumbent fuel producers, who want to see the program fail, to limit the distribution of renewable fuels and thereby define future RFS blending obligations. And by any account, the real world alternative to renewable fuels is marginal, high carbon intensity oil.

In an effort to get the program back on track, we have discussed this methodological problem and potential solutions to it with various energy staffers and economic advisors in your Administration. As we approach the release of the final rule, our industry is increasingly concerned that your Administration may not be giving proper weight to the importance of the RFS methodology when it comes to investment signals and creating markets for more innovative, cheaper products.

To that end, we would like to amplify the dialogue we are currently having with your Administration to ensure that the RFS remains the global gold standard for advanced biofuels policy. We would look forward to an opportunity for further engagement.

Sincerely,



R. Brooke Coleman  
Executive Director  
Advanced Ethanol Council (AEC)



Jim Greenwood  
President and CEO  
Biotechnology Industry Organization (BIO)

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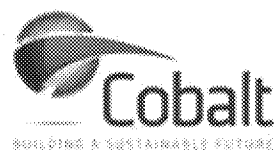
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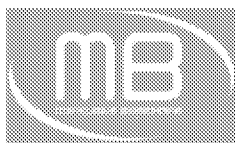


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<sup>i</sup> AEC, BIO Letter on 2014 RVO, <http://www.ethanolrfa.org/page/-/PDFs/AEC%2C%20BIO%20letter%20to%20POTUS%20on%202014%20RVOs.pdf?nocdn=1>

<sup>ii</sup> See [http://www.card.iastate.edu/policy\\_briefs/display.aspx?id=1217](http://www.card.iastate.edu/policy_briefs/display.aspx?id=1217) (concludes that the original 2014 statutory targets can be met without creating problematic economic impacts); <http://www.card.iastate.edu/publications/dbs/pdffiles/14pb18.pdf>

(concludes that continuing to increase the RFS blending requirements will result in higher RIN prices, but higher RIN prices actually slightly reduce prices at the pump for the predominant blend of gasoline).

<sup>iii</sup> See <http://thehill.com/blogs/congress-blog/energy-environment/196135-rfs-kept-gas-prices-down> (oil sector economist concludes that the RFS reduced pump prices by at least \$1 per gallon in 2013).



## Short-Term Energy Outlook (STEO)

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### Highlights

- Driven in large part by falling crude oil prices, U.S. regular gasoline retail prices fell to an average of \$3.49/per gallon (gal) in August, 12 cents below the July average and 21 cents below the average in June. U.S. regular gasoline retail prices are projected to continue to decline to an average of \$3.18/gal in December, 12 cents lower than projected in last month's STEO. EIA expects U.S. regular gasoline retail prices, which averaged \$3.51/gal in 2013, to average \$3.46/gal in 2014 and \$3.41/gal in 2015, 4 cents lower and 6 cents lower than last month's STEO, respectively.
- Weakening global demand and increased Libyan oil exports contributed to a drop in the North Sea Brent crude oil spot price to an average of \$102 per barrel (bbl) in August, \$5/bbl lower than the July average and \$10/bbl below the average in June. For the first time in 14 months, average Brent spot prices fell outside the relatively narrow \$5/bbl range between \$107/bbl and \$112/bbl. EIA projects that Brent crude oil prices will average \$103/bbl in fourth-quarter 2014 and \$103/bbl in 2015, \$5/bbl and \$2/bbl lower than forecast in last month's STEO, respectively. The WTI discount to Brent, which averaged \$11/bbl in 2013, is expected to average \$8/bbl in both 2014 and 2015.
- Total U.S. crude oil production averaged an estimated 8.6 million barrels per day (bbl/d) in August, the highest monthly production since July 1986. Total crude oil production, which averaged 7.5 million bbl/d in 2013, is expected to average 9.5 million bbl/d in 2015, 0.2 million bbl/d higher than projected in last month's STEO. If achieved, the 2015 forecast would be the highest annual average crude oil production since 1970. Natural gas plant liquids production increases from an average of 2.6 million bbl/d in 2013 to 3.1 million bbl/d in 2015. The growth in domestic liquids production has contributed to a significant decline in petroleum imports. The share of total U.S. petroleum and other liquids consumption met by net imports fell from 60% in 2005 to an average of 32% in 2013. EIA expects the net import share to decline to 21% in 2015, which would be the lowest level since 1968.
- Natural gas spot prices fell 15% from an average of \$4.59/million British thermal units (MMBtu) in June to \$3.91/MMBtu in August even as natural gas stock builds continued to outpace historical norms. Natural gas working inventories on August 29 totaled 2.71 trillion cubic feet (Tcf), 0.47 Tcf (15%) below the level at the same time a year ago and 0.50 Tcf (15%) below the previous five-year average (2009-13). Projected natural gas working

inventories reach 3.48 Tcf at the end of October, 0.34 Tcf below the level at the same time last year. EIA expects that the Henry Hub natural gas spot price, which averaged \$3.73 per MMBtu in 2013, will average \$4.46/MMBtu in 2014 and \$3.87/MMBtu in 2015.

## Global Petroleum and Other Liquids

EIA estimates that global oil inventories grew by 0.5 million bbl/d in August. The recent inventory builds are somewhat atypical for this time of year and signal a relatively loose global crude oil market compared with conditions over the past three years. Weaker oil demand and lower refinery runs in European and Asian countries within the Organization for Economic Cooperation and Development (OECD) this year have reduced market tightness. Nevertheless, these conditions may be temporary and the risk for tighter markets in the future remains elevated due to persistently high supply disruptions and relatively low surplus crude oil production capacity.

Geopolitical risks to near-term supply have abated since June, when Libya's production and exports were at a minimal level and violence in northern Iraq escalated causing northern production (outside of Iraqi Kurdistan) to come to a near-halt. Iraq's southern crude oil exports still remain unaffected by the unrest in northern Iraq. In Libya, crude oil exports restarted in August at the country's two major eastern ports, Es Sidra and Ras Lanuf, after being blocked by protestors for about a year. However, the situation in Libya is still very precarious as the security situation remains volatile, with a significant possibility of intermittent disruptions.

EIA projects world petroleum and other liquids supply to increase by 1.6 million bbl/d in 2014 and by 1.3 million bbl/d in 2015, with most of the growth coming from countries outside of the Organization of the Petroleum Exporting Countries (OPEC). Forecast non-OPEC supply grows by 1.8 million bbl/d in 2014 and 1.2 million bbl/d in 2015. The United States accounts for much of this growth. Projected world liquid fuels consumption grows by an annual average of 1.0 million bbl/d in 2014 and 1.3 million bbl/d in 2015. Non-OECD countries, notably China, drive expected consumption growth.

**Global Petroleum and Other Liquids Consumption.** Global consumption grew by 1.3 million bbl/d (1.5%) in 2013, averaging 90.5 million bbl/d for the year. EIA expects global consumption to grow by 1.0 million bbl/d in 2014 and 1.3 million bbl/d in 2015. Projected global oil-consumption-weighted real GDP, which increased 2.7% in 2013, grows by 2.7% and 3.3% in 2014 and 2015, respectively.

Non-OECD consumption is projected to grow by 1.3 million bbl/d in 2014 and 1.2 million bbl/d in 2015, accounting for nearly all forecast global consumption growth during that period. China is the leading contributor to projected global consumption growth, with consumption increasing by 0.37 million bbl/d (3.5%) in 2014 and 0.43 million bbl/d in 2015.



EIA expects a 0.21-million-bbl/d decline in OECD consumption in 2014, led by projected consumption declines in both Japan and Europe. Japan's consumption, which fell by 0.16 million bbl/d in 2013, is projected to continue to decline by an annual average of 0.13 million bbl/d in 2014 and 0.16 million bbl/d in 2015. The projected decline reflects Japan's effort to reduce its share of oil in the electricity sector, replacing it with natural gas, coal, and nuclear power as the country returns some nuclear power plants to service in 2015. OECD Europe's consumption, which fell by 0.12 million bbl/d in 2013, is projected to decline by a further 0.12 million bbl/d in 2014 and by 0.03 million bbl/d in 2015. U.S. consumption, which increased by 0.47 million bbl/d in 2013, is expected to be mostly flat in 2014 and then increase by 0.15 million bbl/d in 2015.

**Non-OPEC Petroleum and Other Liquids Supply.** EIA estimates that non-OPEC production grew by 1.4 million bbl/d in 2013, averaging 54.1 million bbl/d for the year. EIA expects non-OPEC production to grow by 1.8 million bbl/d in 2014 and 1.2 million bbl/d in 2015. The United States is the leading contributor to forecast non-OPEC supply growth, increasing by 1.4 million bbl/d in 2014 and 1.2 million bbl/d in 2015. EIA estimates that Eurasia's production will increase by less than 0.1 million bbl/d in 2014, with increased production from Russia and Kazakhstan offsetting declines in other countries, and stay relatively flat in 2015. This forecast assumes the current economic sanctions on Russia do not affect Russian oil production in the short term.

Unplanned supply disruptions among non-OPEC producers averaged nearly 0.6 million bbl/d in August, slightly lower than the estimated July level. South Sudan, Syria, and Yemen accounted for more than 85% of total non-OPEC supply disruptions. EIA does not assume a disruption to oil supply or demand as a result of ongoing events in Ukraine.

**OPEC Petroleum and Other Liquids Supply.** EIA estimates that OPEC crude oil production averaged 29.9 million bbl/d in 2013, a decline of 1.0 million bbl/d from the previous year, primarily reflecting increased outages in Libya, Nigeria, and Iraq, along with strong non-OPEC supply growth. EIA expects OPEC crude oil production to fall by 0.3 million bbl/d in 2014 and by 0.1 million bbl/d in 2015 to accommodate growing production in non-OPEC countries.

Unplanned crude oil supply disruptions among OPEC producers averaged 2.4 million bbl/d in August 2014, 0.1 million bbl/d lower than the previous month mainly because of decreased outages in Libya. Libya's production increased to 0.5 million bbl/d in August, 0.3 million bbl/d higher than the second quarter 2014 average, but still well below the 1.4 million bbl/d the country produced before the major blockades started in mid-2013. Almost all of Libya's export terminals are able to export crude as protestors agreed to stop the blockades, and production has restarted in some of Libya's largest eastern oil fields. However, some of the major issues that incited the widespread protests over the past year remain unresolved. As a result, EIA does not expect Libya's oil production to recover to its preblockade level over the forecast period.

EIA expects OPEC surplus crude oil production capacity, which is concentrated in Saudi Arabia, to average 2.2 million bbl/d in 2014 and 2.7 million bbl/d in 2015. These estimates do not

include additional capacity that may be available in Iran but is offline because of the effects of U.S. and European Union sanctions on Iran's ability to sell its oil.

**OECD Petroleum Inventories.** EIA estimates that OECD commercial oil inventories totaled 2.55 billion barrels at the end of 2013, equivalent to roughly 55 days of consumption. Projected OECD oil inventories rise to 2.58 billion barrels at the end of 2014.

**Crude Oil Prices.** North Sea Brent crude oil spot prices averaged \$102/bbl in August, a decrease of \$5/bbl, or 4.7%, from July. Brent crude oil prices were driven downward in large part because of weakening global oil demand as well as growing Libyan oil exports. August was the first in 13 consecutive months in which average Brent crude oil spot prices fell outside the relatively narrow range of \$107/bbl to \$112/bbl. The forecast Brent crude oil price averages \$106/bbl in 2014, \$2/bbl lower than in last month's STEO, and \$103/bbl in 2015, \$2/bbl lower than in last month's STEO.

The monthly average WTI crude oil spot price fell from a high of \$106/bbl in June to \$97/bbl in August. Driven in part by new pipelines delivering crude oil to refining centers along the Gulf Coast, crude oil inventory levels at the Cushing, Oklahoma, storage hub, the futures market's delivery point for WTI, fell below 18 million barrels on July 25, the lowest level since October 2008. Crude oil inventories then built for four consecutive weeks to reach 20.7 million barrels on August 22. After falling to an annual low of \$3/bbl in July, the discount of WTI crude oil to Brent crude oil increased to \$5/bbl in August. While record high refinery runs contributed to the WTI discount falling to \$3/bbl in July, the discount widened in August while refinery runs remained elevated. EIA now expects WTI crude oil prices to average \$93/bbl in the fourth quarter of 2014, \$5/bbl lower than in last month's STEO, and \$95/bbl in 2015. The discount of WTI to Brent crude oil is forecast to widen from current levels, averaging \$10/bbl in the fourth quarter of 2014 and \$8/bbl in 2015.

Energy price forecasts are highly uncertain, and the current values of futures and options contracts suggest that prices could differ significantly from the forecast levels (*Market Prices and Uncertainty Report*). WTI futures contracts for December 2014 delivery, traded during the five-day period ending September 4, averaged \$93/bbl. Implied volatility averaged 16%, establishing the lower and upper limits of the 95% confidence interval for the market's expectations of monthly average WTI prices in December 2014 at \$81/bbl and \$107/bbl, respectively. Last year at this time, WTI for December 2013 delivery averaged \$106/bbl and implied volatility averaged 25%. The corresponding lower and upper limits of the 95% confidence interval were \$86/bbl and \$131/bbl.

## U.S. Petroleum and Other Liquids

After reaching a summer peak of \$3.70/gal in late June, U.S. average regular gasoline retail prices fell to \$3.45/gal on August 25, the lowest price on the Monday before Labor Day since 2010. Gasoline prices have fallen from their summer peak in late June primarily because of

lower crude oil prices, which in addition to reduced geopolitical risk premiums to Iraqi and Libyan oil exports, have been driven downward because of weakening global oil demand indicators in combination with growing international oil supplies. EIA expects that U.S. regular gasoline retail prices will continue to fall through the end of the year, reaching \$3.18/gal in December, which would mark the lowest monthly average since January 2011.

**Liquid Fuels Consumption.** EIA has revised total 2013 U.S. petroleum and other liquids consumption upwards by 74,000 bbl/d to 18.96 million bbl/d. Upward revisions in motor gasoline (69,000 bbl/d), special naphthas (66,000 bbl/d), and hydrocarbon gas liquids (HGL) (47,000 bbl/d) were offset by a 113,000 bbl/d reduction in unfinished oils consumption. Total U.S. petroleum and other liquids consumption rose by 470,000 bbl/d (2.5%) in 2013, the largest annual increase since 2004. Motor gasoline consumption rose by 160,000 bbl/d (1.9%). High petrochemical demand and a very wet corn crop late in the year contributed to a 100,000 bbl/d (8.5%) increase in propane consumption last year.

Total consumption is expected to fall slightly, by 0.2%, in 2014. A year-over-year increase in total consumption of 170,000 bbl/d during the first quarter is expected to be more than offset by an average 150,000 bbl/d decline during the second half of the year. Propane consumption retreats from last year's growth, falling by an average of 110,000 bbl/d this year. Distillate fuel consumption is projected to increase by an average of 160,000 bbl/d (4.2%) in 2014.

Total consumption grows by 150,000 bbl/d in 2015 to average 19.08 million bbl/d, an increase of 100,000 bbl/d from last month's STEO. HGL consumption, primarily ethane and propane, increases by 120,000 bbl/d next year, while distillate consumption is 70,000 bbl/d higher.

**Liquid Fuels Supply.** The forecast for total U.S. crude oil production increases from an estimated 7.45 million bbl/d in 2013 to 8.53 million bbl/d in 2014 and 9.53 million bbl/d in 2015. The 2014 and 2015 forecasts are 0.07 million bbl/d and 0.25 million bbl/d higher than in last month's STEO, respectively. The highest previous annual average U.S. production level was 9.6 million bbl/d in 1970. Oil production from the Gulf of Mexico is expected to increase from 1.25 million bbl/d in 2013 to 1.67 million bbl/d in 2015, with 11 projects starting this year. Six projects began production in the first half of 2014: Na Kika Phase 3, Mars B, Dalmatian, Entrada, Atlantis Phase 2, and Tubular Bells. Additional wells are expected to come online in the fourth quarter of 2014 from the Cardamom Deep, South Deimos/West Boreas, Hadrian South, Jack/St. Malo, and Lucius projects.

HGL production at natural gas liquids plants is projected to increase from 2.6 million bbl/d in 2013 to 3.1 million bbl/d in 2015. Most of this growth is expected to come from additional ethane and propane production that will meet growing demand associated with expanding domestic ethylene and propylene production and export capacity.

The growth in domestic production has contributed to a significant decline in petroleum imports. The share of total U.S. liquid fuels consumption met by net imports fell from 60% in

2005 to an average of 32% in 2013. EIA expects the net import share to decline to 21% in 2015, which would be the lowest level since 1968.

**Petroleum Product Prices.** EIA expects that the monthly average regular gasoline retail price will fall from the recent peak of \$3.69/gal in June to \$3.41/gal in September, before falling to \$3.18/gal in December. The U.S. annual average regular gasoline retail price, which averaged \$3.51/gal in 2013, is projected to average \$3.46/gal in 2014 and \$3.41/gal in 2015, 4 cents and 6 cents lower than in last month's STEO, respectively. Diesel fuel prices, which averaged \$3.92/gal in 2013, are projected to fall to an average of \$3.86/gal in 2014 and \$3.82/gal in 2015, 2 cents and 5 cents lower than projected in last month's STEO, respectively. Daily and weekly national average prices can differ significantly from monthly and seasonal averages, and there are also significant differences across regions, with monthly average prices in some areas falling above or below the national average price by 30 cents/gal or more.

## Natural Gas

Industrial natural gas consumption has grown steadily since 2009, as relatively low prices have been attractive to consumers who use natural gas as a feedstock for chemical production. Ammonia-based fertilizer and methanol plants that use natural gas as a feedstock are among the most natural gas-intensive industrial end users. Low gas prices and proximity to shale resources have led to proposals for several methanol and ammonia plants. Two methanol plants are currently under construction and set to begin service this year— a small facility in Pampa, Texas and one in Geismar, Louisiana. Two large facilities coming online in 2015, a methanol plant in Clear Lake, Texas, and a fertilizer/urea plant in Wever, Iowa, will support continued growth in industrial demand. Many large plants use more than 0.1 billion cubic feet per day (Bcf/d) of natural gas. EIA projects growth in industrial demand will continue through 2015, with consumption averaging 21.3 Bcf/d in 2014 and 22.1 Bcf/d in 2015.

**Natural Gas Consumption.** EIA expects total natural gas consumption will average 72.6 Bcf/d in 2014, an increase of 1.8% from 2013 led by the industrial sector. In 2015, total natural gas consumption increases 0.2% as continued industrial sector growth offsets lower residential and commercial consumption. Higher natural gas prices this year contribute to a 2.0% decline in natural gas consumption in the power sector to 21.9 Bcf/d in 2014. EIA expects natural gas consumption in the power sector to increase to 22.8 Bcf/d in 2015.

**Natural Gas Production and Trade.** EIA expects natural gas marketed production to grow by an annual rate of 5.3% in 2014 and 2.1% in 2015. STEO projects that strong increases already seen in the Lower 48 states this year will continue, offsetting declines in the Gulf of Mexico. As of June, the most recent month for which EIA data are available, marketed production was 4.6 Bcf/d greater than it was in June 2013. Rapid natural gas production growth in the Marcellus formation has contributed to low natural gas forward prices in the Northeast, and as a result new infrastructure has been proposed to flow gas to other market regions. In June, the eastward-flowing Rockies Express Pipeline (REX) began service on its Seneca Lateral, which flows

Marcellus gas westward to the Midwest. REX's parent company, Tallgrass Energy, plans to add bi-directional capability on a significant portion of REX's easternmost segment.

Growing domestic production is expected to continue to put downward pressure on natural gas imports from Canada, and spur exports to Mexico. Exports to Mexico have been increasing in recent months because of growing demand from Mexico's electric power sector and flat Mexican production. Mexico has been an outlet for U.S. production, particularly from the Eagle Ford Shale in South Texas.

Liquefied natural gas (LNG) imports have fallen over the past four years because higher prices in Europe and Asia are more attractive to sellers than the relatively low prices in the United States. This month's STEO revises the forecast for 2015 LNG net imports to reflect Cheniere Energy's Sabine Pass export terminal beginning service in 2015. EIA now expects the United States will be a net exporter of LNG in 2015. LNG exports are still a very small part of the total picture, however, and overall the United States will remain a net importer of natural gas because of pipeline imports from Canada.

**Natural Gas Inventories.** Natural gas working inventories totaled 2,709 Bcf as of August 29, which was 471 Bcf lower than the same time last year and 495 Bcf lower than the previous five-year (2009-13) average. The injection season began somewhat slowly in April, but has continued at a strong pace, with injections averaging above the five-year average throughout most of the injection season. EIA expects working gas stocks will reach 3,477 Bcf at the end of October, 339 Bcf lower than at the same time last year.

**Natural Gas Prices.** Natural gas prices fell from \$4.05/MMBtu in July to \$3.91/MMBtu in August as storage injections continue to outpace historical norms. EIA expects spot prices will remain below \$4/MMBtu through October, before rising with winter heating demand. Projected Henry Hub natural gas prices average \$4.46/MMBtu in 2014 and \$3.87/MMBtu in 2015.

Natural gas futures prices for December 2014 delivery (for the five-day period ending September 4) averaged \$4.07/MMBtu. Current options and futures prices imply that market participants place the lower and upper bounds for the 95% confidence interval for December 2014 contracts at \$3.09/MMBtu and \$5.35/MMBtu, respectively. At this time last year, the natural gas futures contract for December 2013 averaged \$3.87/MMBtu and the corresponding lower and upper limits of the 95% confidence interval were \$2.98/MMBtu and \$5.04/MMBtu.

## Coal

Electric power sector coal inventories fell to 133 million short tons (MMst) at the end of June, 38 MMst lower compared with the same time last year. Coal inventories in the Midwest and South, two regions that rely heavily on coal-fired generation, are down 19% and 29%, respectively, when compared with last year. Midwestern electric generators have recently cited

continuing problems with rail coal deliveries to power plants. One utility in Wisconsin is concerned that it may have to cease or curtail operations at a coal plant and in Minnesota one utility states that it has begun curtailing output at a large coal-fired plant to conserve fuel. Coal car loadings have fallen in 8 of the past 9 weeks, and although year-to-date rail coal shipments are up by 0.1%, this has been insufficient to maintain stocks. Some Southern generators are reportedly turning to shipments of imported coal to meet their needs.

**Coal Supply.** EIA estimates that coal production for the first eight months of this year (658 MMst) was slightly lower (5 MMst) than production over the same period last year. EIA expects that U.S. coal production will grow 1.4% to 998 MMst in 2014, driven by higher consumption and a need to replenish consumer inventories, particularly at power producers. In 2015, forecast U.S. coal production increases slightly by 0.5% to 1,002 MMst.

**Coal Consumption.** EIA projects total coal consumption growth of 2.0% to 943 MMst in 2014 because of higher electricity demand and power sector natural gas prices more than 20% above their 2013 level. Total coal consumption is projected to fall by 2.6% in 2015, as retirements of coal power plants rise in response to the implementation of the Mercury and Air Toxics Standards, electricity sales growth slows to 0.4%, and natural gas prices fall relative to coal prices.

**Coal Trade.** EIA estimates that coal exports for the first six months of this year were 17.2% (10.5 MMst) lower compared with last year, with tonnage declines for steam coal exports more than double those of metallurgical coal. Coal exports are projected to decline to 96 MMst in 2014 from 118 MMst in 2013, primarily because of slowing world coal demand growth, lower international coal prices, and increasing coal output in other coal-exporting countries.

Coal imports for the first six months of this year increased by 43% (1.8 MMst) compared with last year. Rail congestion, coupled with falling global coal prices, has made imports an attractive alternative to domestic coal, especially to power plants in the East. EIA expects coal imports to total 12.8 MMst in 2014 and fall slightly to 10.8 MMst in 2015.

**Coal Prices.** Annual average coal prices to the electric power industry fell over the past few years, from \$2.39/MMBtu in 2011 to \$2.35/MMBtu in 2013. EIA expects the average delivered coal prices to be \$2.36/MMBtu in 2014 and remain at that level in 2015.

## Electricity

Preliminary data indicate that power generators added 4.35 gigawatts (GW) of new capacity during the first half of 2014. This rate of new capacity builds is 40% below the rate of capacity additions during the same period last year. Power plants fueled by natural gas accounted for more than half of the new capacity coming online so far this year, with the remainder primarily composed of renewable generating capacity. No coal-fired generating capacity was completed

during the first half of 2014, compared with 1.51 GW in 2013. Two coal plants with a total capacity of 0.58 GW are scheduled to begin operations this year. Preliminary data indicate that at least 0.95 GW of coal-fired capacity has been retired so far this year. A much larger number of coal plants are expected to retire during 2015.

**Electricity Consumption.** After cold weather during the first quarter of this year and relatively close to normal summer temperatures, EIA projects growth of 1.9% in U.S. retail sales of electricity to the residential sector in 2014. As forecast temperatures return to normal in 2015, EIA expects residential electricity sales will decline by 0.7% next year. Relatively modest economic growth compared with last year has led to slower growth in the electricity sales to the commercial sector. U.S. commercial electricity sales are expected to average 0.9% higher in 2014 than sales last year and then grow by 0.4% in 2015. EIA expects U.S. industrial electricity sales to remain flat during 2014 and grow by 2.2% in 2015 after two years of declines.

**Electricity Generation.** EIA projects that average daily U.S. electricity generation in 2014 will grow by 100 gigawatthours per day (0.9%) from last year. Changes in relative fuel costs have altered the mix of plants used to generate electricity. Power sector natural gas prices this year are expected to be more than 20% higher than prices last year, while the prices of coal delivered to the power sector are expected remain flat. Rising natural gas costs lead to a reduction in the fuel's share of total generation from 27.4% in 2013 to 26.7% this year. In contrast, coal's share of total generation rises from 39.1% in 2013 to 40.1% this year. In 2015, EIA expects the power sector's price of natural gas will fall by 12%. This lower price, combined with the scheduled retirements of coal capacity, should push up natural gas's fuel share next year to 27.6% and reduce coal's fuel share to 38.8%.

**Electricity Retail Prices.** Residential electricity prices have risen in most states so far this year, compared with the same period in 2013. EIA expects the U.S. residential price to average 12.5 cents per kilowatthour in 2014, which is 3.1% higher than the average last year. The increase in average prices will be highest in the New England states, at 7.8%. Average U.S. residential electricity prices grow at a slower rate of 1.7% in 2015.

## Renewables and Carbon Dioxide Emissions

Almost 50% of the new utility-scale power generation capacity added during the first half of 2014 uses renewable energy sources. Solar-powered capacity grew about 1,150 megawatts (MW) during the first six months of 2014 compared with 690 MW added during the same period last year. The electricity industry has added 675 MW of wind capacity this year, which is more than double the amount added during the first half of 2013.

**Electricity and Heat Generation from Renewables.** EIA projects that total renewables use for electricity and heat generation will grow by 2.1% in 2014. Conventional hydropower generation is projected to fall by 4.2%, while nonhydropower renewables rise by 5.5%. In 2014, nonhydropower renewables generation in the electric power sector surpasses hydropower on

an annual basis for the first time. In 2015, total renewables consumption for electric power and heat generation increases by 4.4%, as a result of a 4.5% increase in hydropower and a 4.4% increase in nonhydropower renewables.

EIA projects that wind power capacity will increase by 9.2% in 2014 and 16.2% in 2015. Electricity generation from wind is projected to contribute 4.6% of total electricity generation in 2015.

EIA expects continued robust growth in solar electricity generation, although the amount of utility-scale generation remains a small share of total U.S. generation at about 0.6% in 2015. While solar growth has historically been concentrated in customer-sited distributed generation installations, utility-scale solar capacity doubled in 2013. EIA expects that utility-scale solar capacity will increase by 104% between the end of 2013 and the end of 2015, with about two-thirds of this new capacity built in California. However, customer-sited photovoltaic capacity growth, which the STEO does not forecast, is expected to exceed utility-scale solar growth between 2013 and 2015, according to [\*EIA's Annual Energy Outlook 2014\*](#).

**Liquid Biofuels.** Ethanol production increased from an average of 907,000 bbl/d in March to average about 940,000 bbl/d over the past 3 months, which are among the highest monthly levels ever recorded, and included the highest weekly level ever recorded at 972,000 bbl/d for the week ending June 13. Ethanol production is forecast to average 929,000 bbl/d in 2014 and 934,000 bbl/d in 2015. Biodiesel production averaged 87,000 bbl/d in 2013 and is forecast to average 80,000 bbl/d in 2014 and 84,000 bbl/d in 2015.

**Energy-Related Carbon Dioxide Emissions.** EIA estimates that carbon dioxide emissions from fossil fuels increased by 2.4% in 2013 from the previous year. Emissions are forecast to rise by 1.3% in 2014, and then to decline by 0.6% in 2015. The increase in total emissions in 2013 and 2014 reflects increases in emissions from coal of 4.2% and 2.1%, respectively. The price of natural gas to electric power generators rose on average by \$0.91/MMBtu in 2013 and is projected to rise by \$0.93/MMBtu in 2014, contributing to an increase in coal use. Coal emissions are projected to decline by 2.5% in 2015.

## U.S. Economic Assumptions

**Recent Economic Indicators.** Economic growth improved substantially in the second quarter of 2014. The U.S. Bureau of Economic Analysis (BEA) reported that second quarter [real gross domestic product \(GDP\)](#) grew at an annualized rate of 4.2% from the first quarter of 2014, which reflects an upward revision of 0.2% from its previous estimate. Second quarter growth was associated with increases in private inventory investment and exports, along with greater state and local government spending and higher nonresidential fixed investment.



The U.S. Bureau of Labor Statistics (BLS) reported that the four-week moving average of initial unemployment insurance claims for the week ending August 30 was 302,750, an increase of 3,000 from the previous week's moving average.

EIA used the August 2014 version of the IHS macroeconomic model with EIA's energy price forecasts as model inputs to develop the economic projections in the STEO.

**Production and Income.** Forecast real GDP growth in 2014 was revised upwards from an average 1.7% in last month's STEO to 2.1%. For 2014, the increase reflects the upward revision in real GDP growth in the second quarter of 2014. Real disposable income grows by 2.5% in 2014, down from the 3.1% forecast last month. In 2015, both real GDP and disposable income increase by 2.8%. Total industrial production grows at 3.9% in 2014 and 3.4% in 2015. Growth in industrial production in the manufacturing sector averages 3.5% in both 2014 and 2015.

**Expenditures.** Private real fixed investment growth averages 4.8% and 7.3% in 2014 and 2015, respectively, led by industrial and transportation equipment in 2014 and by a broad array of equipment categories in 2015. Real consumption expenditures grow faster than real GDP in 2014 at 2.3%, but fall below the real GDP growth rate in 2015 at 2.7%. Durable goods expenditures drive consumption spending in both years. Export growth is 2.7% and 5.4% over the same two years, while import growth is 3.5% in 2014 and 4.9% in 2015. Total government expenditures fall 0.4% in 2014, but increase by 0.3% in 2015.

**U.S. Employment, Housing, and Prices.** Projected growth in nonfarm employment averages 1.8% in 2014 and 1.9% in 2015. This is accompanied by a gradually declining unemployment rate that reaches 5.7% at the end of 2015. Housing starts grow an average of 11.4% and 26.8% in 2014 and 2015, respectively. Both consumer and producer price indexes increase at a moderate pace, and wages continue to show modest gains.

This report was prepared by the U.S. Energy Information Administration (EIA), the statistical and analytical agency within the U.S. Department of Energy. By law, EIA's data, analyses, and forecasts are independent of approval by any other officer or employee of the United States Government. The views in this report therefore should not be construed as representing those of the U.S. Department of Energy or other federal agencies.

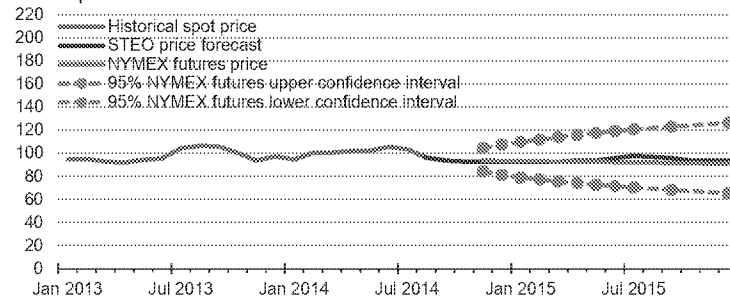


# Short-Term Energy Outlook

## Chart Gallery for September 2014

### West Texas Intermediate (WTI) Crude Oil Price

dollars per barrel

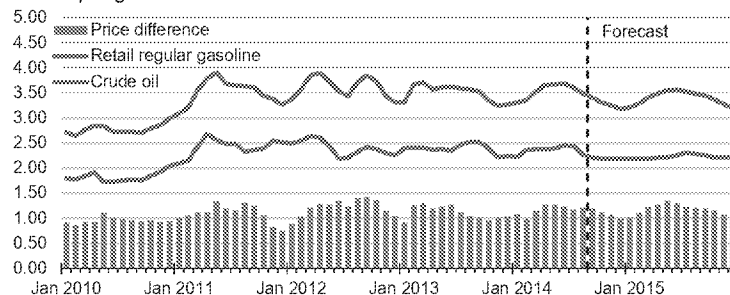


Note: Confidence interval derived from options market information for the 5 trading days ending Sep. 4, 2014. Intervals not calculated for months with sparse trading in near-the-money options contracts.

Source: Short-Term Energy Outlook, September 2014.

### U.S. Gasoline and Crude Oil Prices

dollars per gallon

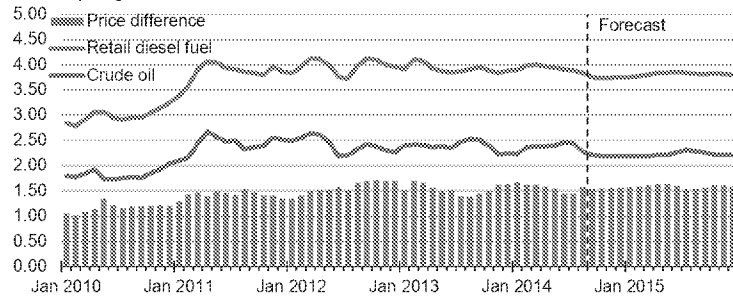


Crude oil price is composite refiner acquisition cost. Retail prices include state and federal taxes.

Source: Short-Term Energy Outlook, September 2014.

### U.S. Diesel Fuel and Crude Oil Prices

dollars per gallon

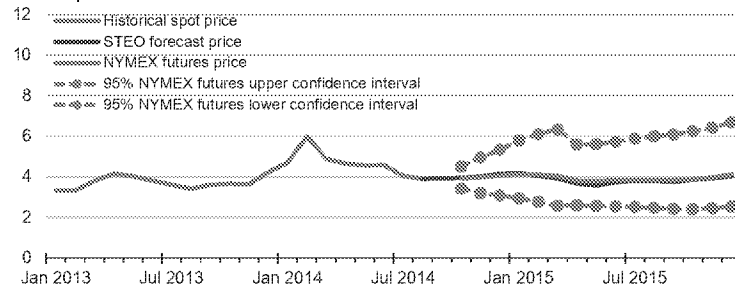


Crude oil price is composite refiner acquisition cost. Retail prices include state and federal taxes.

Source: Short-Term Energy Outlook, September 2014.

### Henry Hub Natural Gas Price

dollars per million Btu

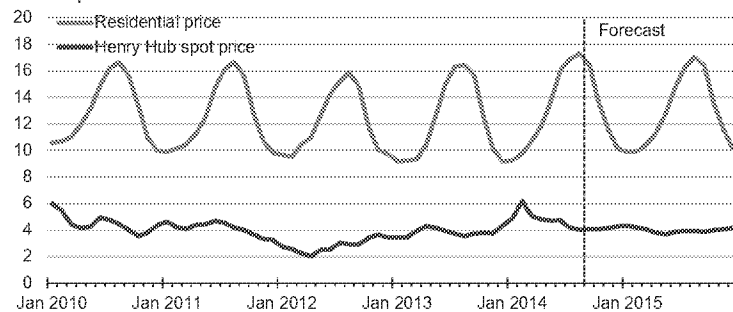


Note: Confidence interval derived from options market information for the 5 trading days ending Sep. 4, 2014. Intervals not calculated for months with sparse trading in near-the-money options contracts.

Source: Short-Term Energy Outlook, September 2014.

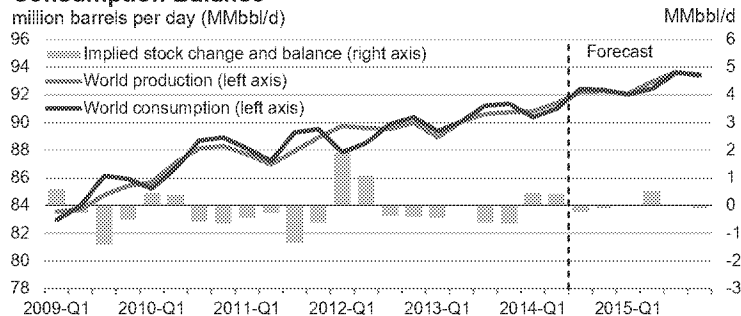
### U.S. Natural Gas Prices

dollars per thousand cubic feet



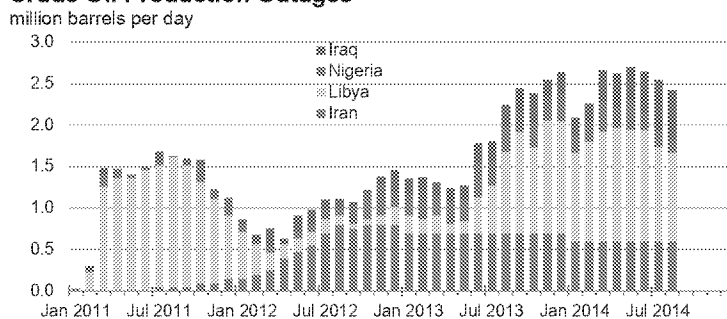
Source: Short-Term Energy Outlook, September 2014.

### World Liquid Fuels Production and Consumption Balance



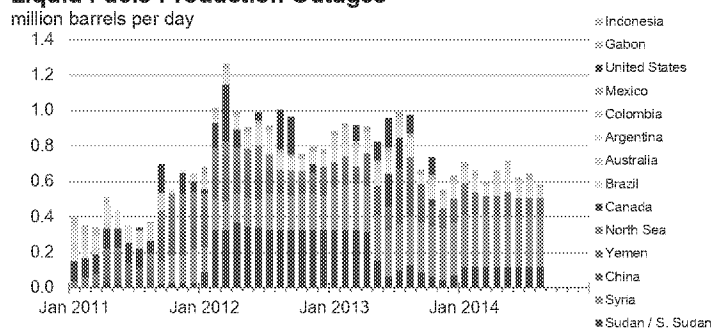
Source: Short-Term Energy Outlook, September 2014.

### Estimated Historical Unplanned OPEC Crude Oil Production Outages



Source: Short-Term Energy Outlook, September 2014.

### Estimated Historical Unplanned Non-OPEC Liquid Fuels Production Outages

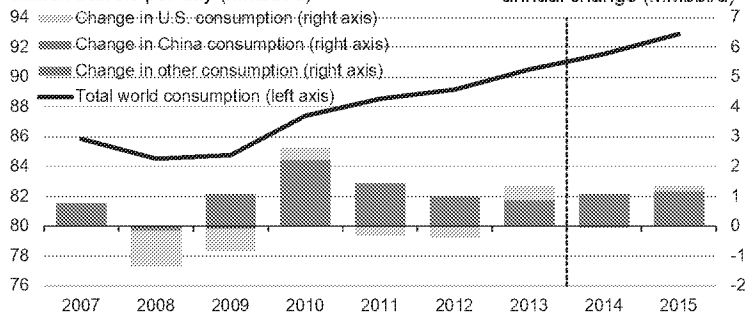


Source: Short-Term Energy Outlook, September 2014.

### World Liquid Fuels Consumption

million barrels per day (MMbbl/d)

annual change (MMbbl/d)

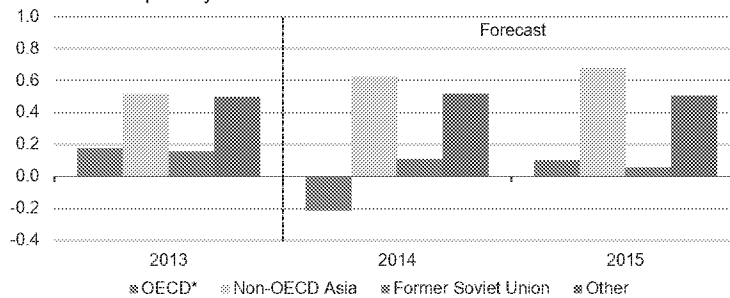


Source: Short-Term Energy Outlook, September 2014.

### World Liquid Fuels Consumption Growth

million barrels per day

Forecast



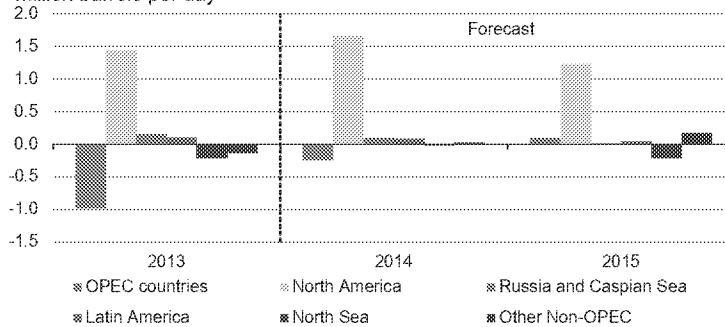
\* Countries belonging to the Organization for Economic Cooperation and Development

Source: Short-Term Energy Outlook, September 2014.

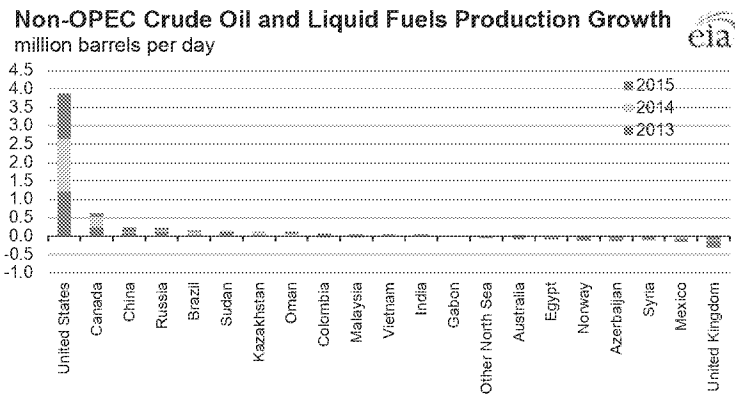
### World Crude Oil and Liquid Fuels Production Growth

million barrels per day

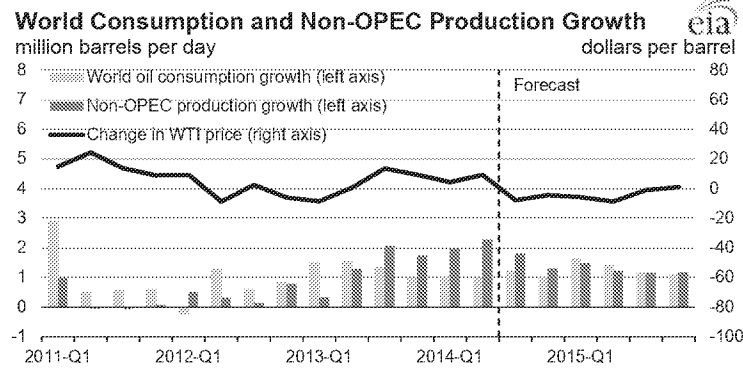
Forecast



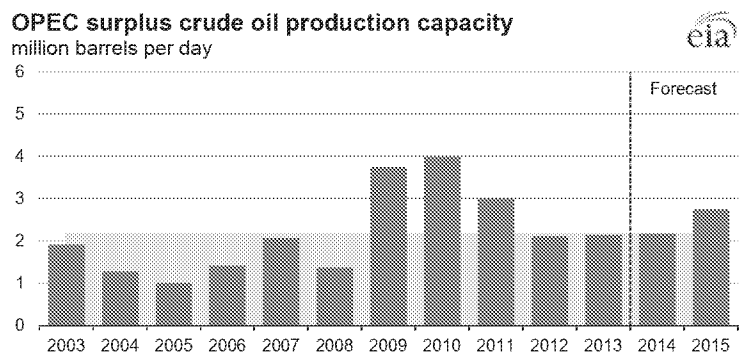
Source: Short-Term Energy Outlook, September 2014.



Source: Short-Term Energy Outlook, September 2014.



Source: Short-Term Energy Outlook, September 2014.

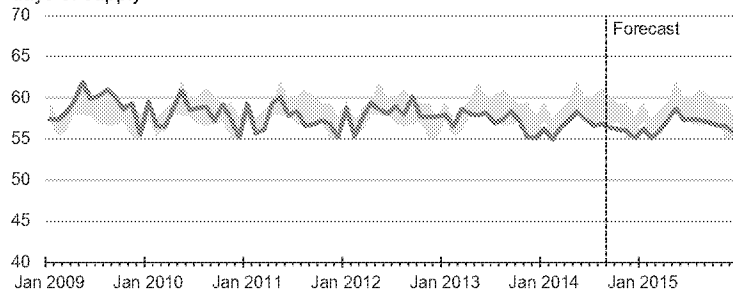


Note: Shaded area represents 2003-2013 average (2.2 million barrels per day).

Source: Short-Term Energy Outlook, September 2014.

### OECD Commercial Crude Oil Stocks

days of supply



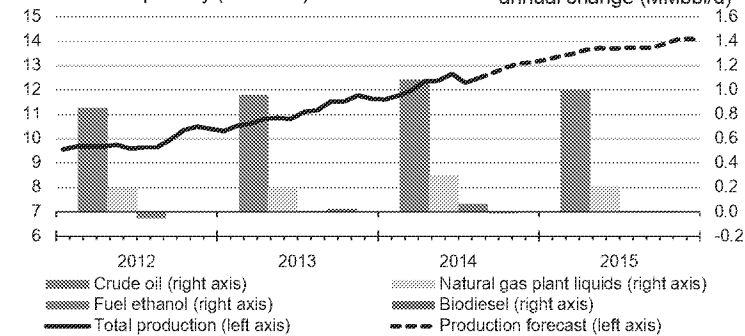
Note: Colored band around crude oil stocks days of supply represents the range between the minimum and maximum from Jan. 2009 - Dec. 2013.

Source: Short-Term Energy Outlook, September 2014.

### U.S. Crude Oil and Liquid Fuels Production

million barrels per day (MMbbl/d)

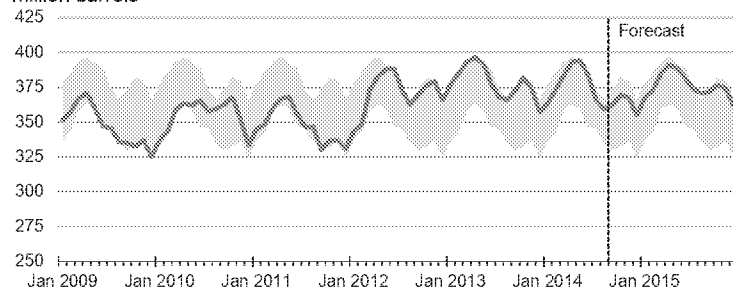
annual change (MMbbl/d)



Source: Short-Term Energy Outlook, September 2014.

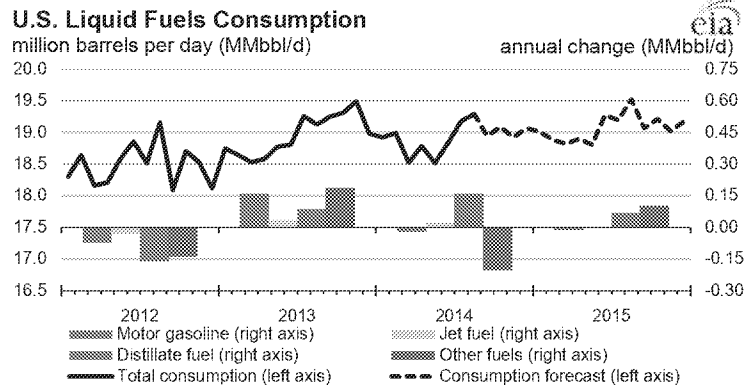
### U.S. Commercial Crude Oil Stocks

million barrels

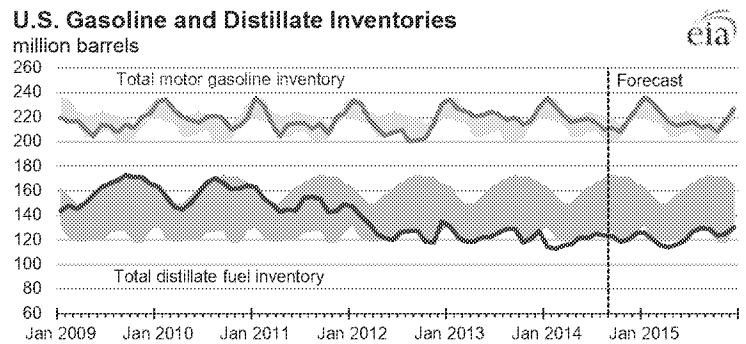


Note: Colored band around storage levels represents the range between the minimum and maximum from Jan. 2009 - Dec. 2013.

Source: Short-Term Energy Outlook, September 2014.

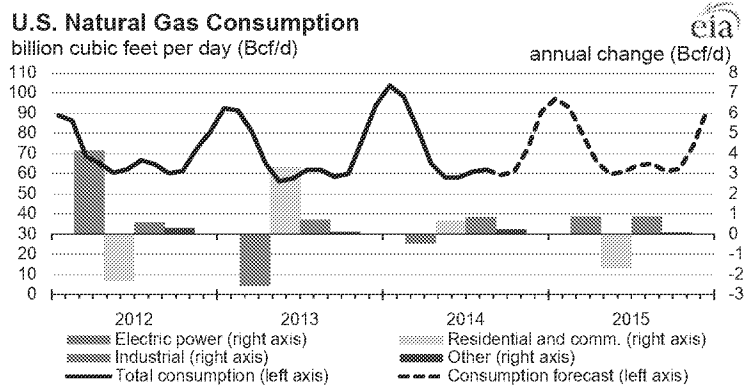


Source: Short-Term Energy Outlook, September 2014.



Note: Colored bands around storage levels represent the range between the minimum and maximum from Jan. 2009 - Dec. 2013.

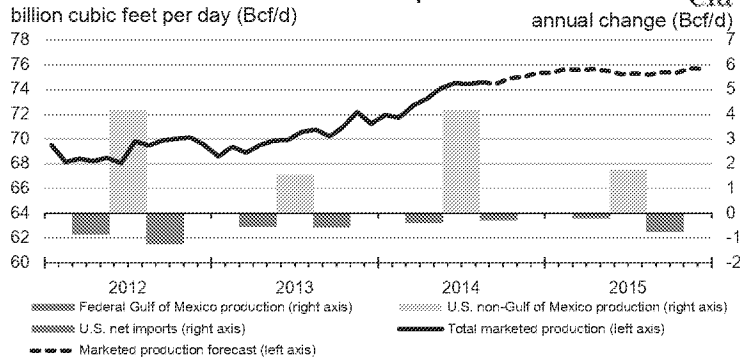
Source: Short-Term Energy Outlook, September 2014.



Source: Short-Term Energy Outlook, September 2014.

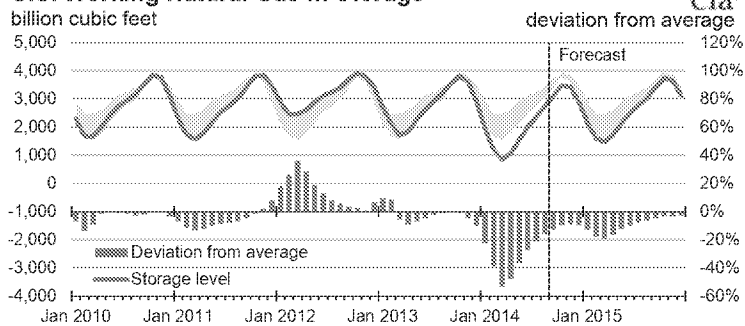


### U.S. Natural Gas Production and Imports



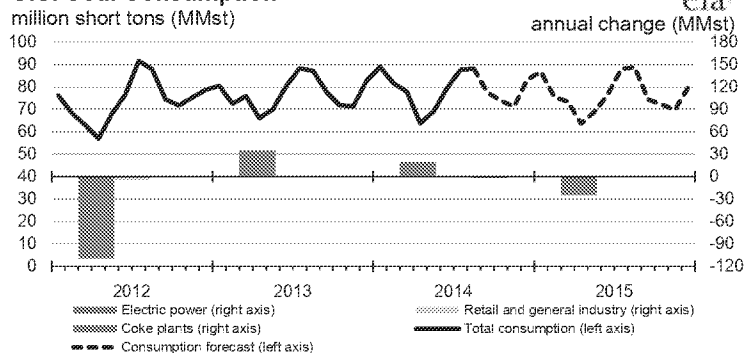
Source: Short-Term Energy Outlook, September 2014.

### U.S. Working Natural Gas in Storage

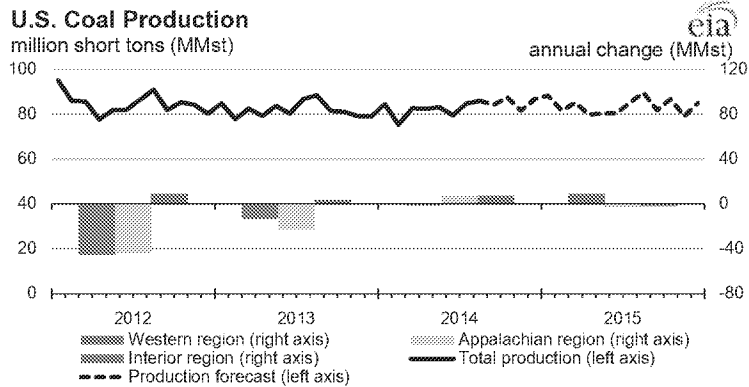


Note: Colored band around storage levels represents the range between the minimum and maximum from Jan. 2009 - Dec. 2013.  
Source: Short-Term Energy Outlook, September 2014.

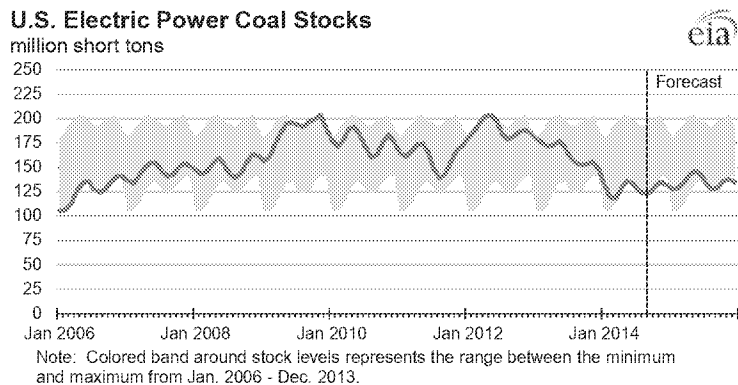
### U.S. Coal Consumption



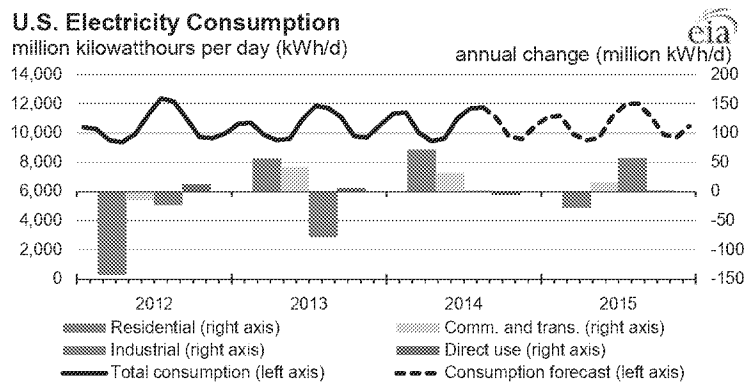
Source: Short-Term Energy Outlook, September 2014.



Source: Short-Term Energy Outlook, September 2014.



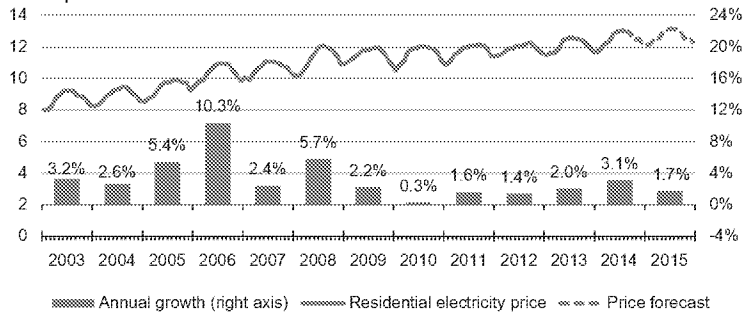
Source: Short-Term Energy Outlook, September 2014.



Source: Short-Term Energy Outlook, September 2014.

### U.S. Residential Electricity Price

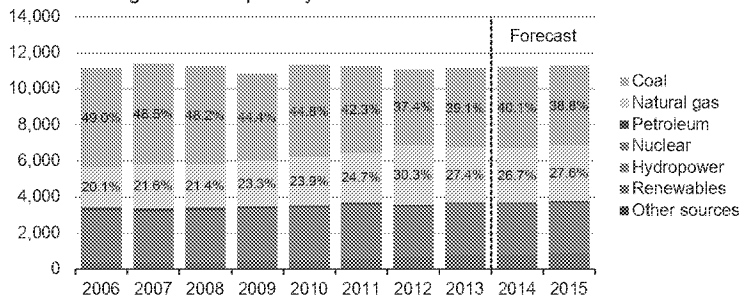
cents per kilowatthour



Source: Short-Term Energy Outlook, September 2014.

### U.S. Electricity Generation by Fuel, All Sectors

thousand megawatthours per day

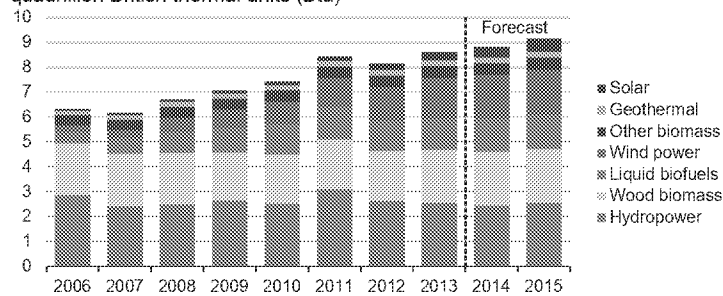


Note: Labels show percentage share of total generation provided by coal and natural gas.

Source: Short-Term Energy Outlook, September 2014.

### U.S. Renewable Energy Supply

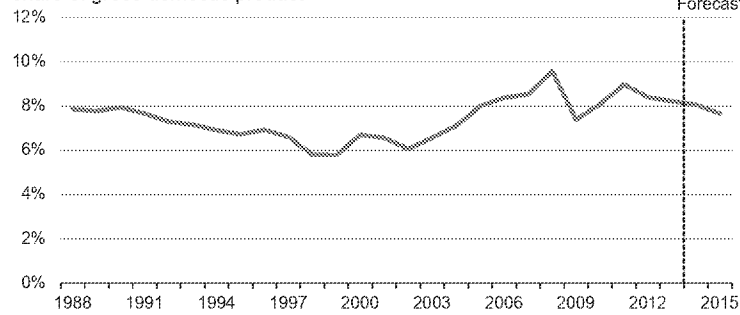
quadrillion British thermal units (Btu)



Note: Hydropower excludes pumped storage generation. Liquid biofuels include ethanol and biodiesel. Other biomass includes municipal waste from biogenic sources, landfill gas, and other non-wood waste.

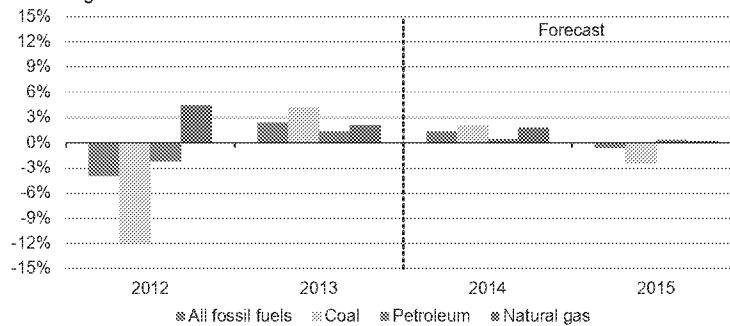
Source: Short-Term Energy Outlook, September 2014.

### U.S. Annual Energy Expenditures share of gross domestic product



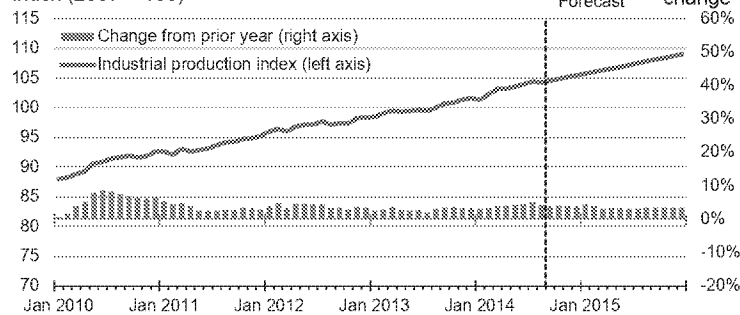
Source: Short-Term Energy Outlook, September 2014.

### U.S. Energy-Related Carbon Dioxide Emissions annual growth



Source: Short-Term Energy Outlook, September 2014.

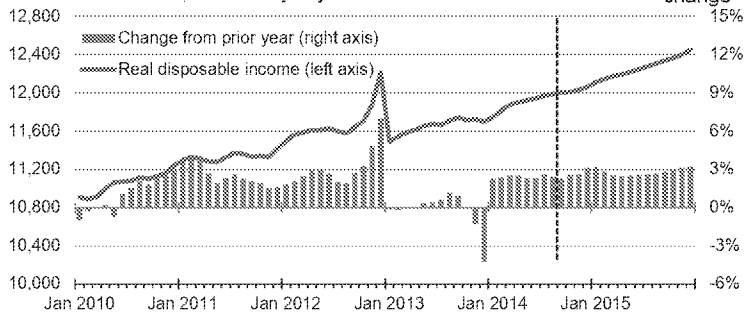
### U.S. Total Industrial Production Index index (2007 = 100)



Source: Short-Term Energy Outlook, September 2014.

### U.S. Disposable Income

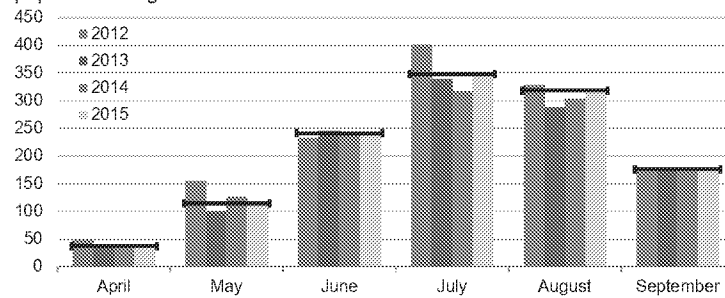
billion 2009 dollars, seasonally adjusted



Source: Short-Term Energy Outlook, September 2014.

### U.S. Summer Cooling Degree Days

population-weighted

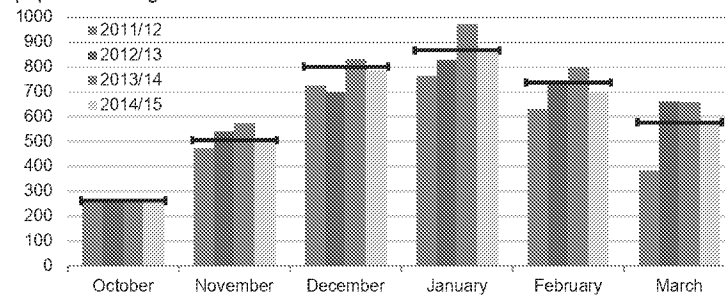


Note: EIA calculations based on from the National Oceanic and Atmospheric Administration data. Horizontal lines indicate each month's prior 10-year average (2004-2013). Projections reflect NOAA's 14-16 month outlook.

Source: Short-Term Energy Outlook, September 2014.

### U.S. Winter Heating Degree Days

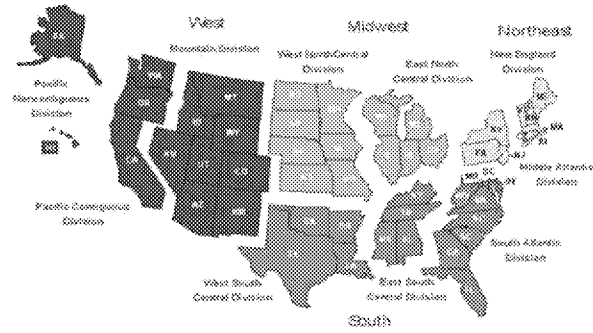
population-weighted



Note: EIA calculations based on National Oceanic and Atmospheric Administration (NOAA) data. Horizontal lines indicate each month's prior 10-year average (Oct 2004 - Mar 2014). Projections reflect NOAA's 14-16 month outlook.

Source: Short-Term Energy Outlook, September 2014.

## U.S. Census Regions and Divisions



Source: Short-Term Energy Outlook, September 2014.

**Table SF01. U.S. Motor Gasoline Summer Outlook**

U.S. Energy Information Administration | Short-Term Energy Outlook - September 2014

	2013			2014			Year-over-year Change (percent)		
	Q2	Q3	Season	Q2	Q3	Season	Q2	Q3	Season
<b>Nominal Prices</b> (dollars per gallon)									
WTI Crude Oil (Spot) <sup>a</sup>	<b>2.24</b>	<b>2.52</b>	<b>2.38</b>	<i>2.46</i>	<i>2.33</i>	<i>2.40</i>	9.8	-7.4	0.7
Brent Crude oil Price (Spot)	<b>2.44</b>	<b>2.63</b>	<b>2.54</b>	<i>2.61</i>	<i>2.46</i>	<i>2.54</i>	6.9	-6.2	0.0
U.S. Refiner Average Crude Oil Cost	<b>2.37</b>	<b>2.51</b>	<b>2.44</b>	<i>2.41</i>	<i>2.31</i>	<i>2.36</i>	1.9	-7.7	-3.1
Wholesale Gasoline Price <sup>b</sup>	<b>2.90</b>	<b>2.88</b>	<b>2.89</b>	<i>2.98</i>	<i>2.75</i>	<i>2.86</i>	2.8	-4.4	-0.8
Wholesale Diesel Fuel Price <sup>b</sup>	<b>2.95</b>	<b>3.06</b>	<b>3.01</b>	<i>3.00</i>	<i>2.85</i>	<i>2.92</i>	1.5	-6.9	-2.8
Regular Gasoline Retail Price <sup>c</sup>	<b>3.60</b>	<b>3.57</b>	<b>3.58</b>	<i>3.68</i>	<i>3.50</i>	<i>3.59</i>	2.0	-1.7	0.1
Diesel Fuel Retail Price <sup>c</sup>	<b>3.88</b>	<b>3.91</b>	<b>3.90</b>	<i>3.94</i>	<i>3.83</i>	<i>3.88</i>	1.4	-2.2	-0.4
<b>Gasoline Consumption/Supply</b> (million barrels per day)									
Total Consumption	<b>8.989</b>	<b>9.074</b>	<b>9.032</b>	<i>9.010</i>	<i>9.001</i>	<i>9.005</i>	0.2	-0.8	-0.3
Total Refinery and Blender Output <sup>d</sup>	<b>7.693</b>	<b>7.980</b>	<b>7.837</b>	<i>7.872</i>	<i>7.955</i>	<i>7.914</i>	2.3	-0.3	1.0
Fuel Ethanol Blending	<b>0.887</b>	<b>0.870</b>	<b>0.878</b>	<i>0.892</i>	<i>0.879</i>	<i>0.885</i>	0.6	1.0	0.8
Total Stock Withdrawal <sup>e</sup>	<b>0.003</b>	<b>0.050</b>	<b>0.027</b>	<i>0.023</i>	<i>0.083</i>	<i>0.053</i>			
Net Imports <sup>e</sup>	<b>0.407</b>	<b>0.174</b>	<b>0.289</b>	<i>0.223</i>	<i>0.084</i>	<i>0.153</i>	-45.2	-51.5	-47.1
Refinery Utilization (percent)	<b>88.5</b>	<b>91.5</b>	<b>90.0</b>	<i>90.4</i>	<i>92.3</i>	<i>91.3</i>			
<b>Gasoline Stocks, Including Blending Components</b> (million barrels)									
Beginning	<b>224.7</b>	<b>224.4</b>	<b>224.7</b>	<i>220.9</i>	<i>218.8</i>	<i>220.9</i>			
Ending	<b>224.4</b>	<b>219.8</b>	<b>219.8</b>	<i>218.8</i>	<i>211.2</i>	<i>211.2</i>			
<b>Economic Indicators</b> (annualized billion 2000 dollars)									
Real GDP	<b>15,607</b>	<b>15,780</b>	<b>15,693</b>	<i>15,986</i>	<i>16,122</i>	<i>16,054</i>	2.4	2.2	2.3
Real Income	<b>11,647</b>	<b>11,706</b>	<b>11,676</b>	<i>11,922</i>	<i>11,987</i>	<i>11,955</i>	2.4	2.4	2.4

<sup>a</sup> Spot Price of West Texas Intermediate (WTI) crude oil.<sup>b</sup> Price product sold by refiners to resellers.<sup>c</sup> Average pump price including taxes.<sup>d</sup> Refinery and blender net production plus finished motor gasoline adjustment.<sup>e</sup> Total stock withdrawal and net imports includes both finished gasoline and gasoline blend components.

GDP = gross domestic product.

Notes: Minor discrepancies with other Energy Information Administration (EIA) published historical data are due to rounding. Historical data are printed in bold. Forecasts are in italic. The forecasts were generated by simulation of the Short-Term Integrated Forecasting System.

Sources: Historical data: latest data available from: EIA *Petroleum Supply Monthly*, DOE/EIA-0109; Monthly Energy Review, DOE/EIA-0035; U.S. Department of Commerce, Bureau of Economic Analysis (GDP and income); Reuters News Service (WTI and Brent crude oil spot prices). Macroeconomic projections are based on IHS Global Insight Macroeconomic Forecast Model.

**Table SF02 Average Summer Residential Electricity Usage, Prices and Expenditures**

U.S. Energy Information Administration | Short-Term Energy Outlook - September 2014

	2009	2010	2011	2012	2013	Forecast 2014	Change from 2013
<b>United States</b>							
Usage (kWh)	3,116	3,471	3,444	3,354	3,121	3,070	-1.6%
Price (cents/kWh)	11.87	12.00	12.06	12.09	12.55	13.00	3.6%
Expenditures	\$370	\$416	\$415	\$405	\$392	\$399	1.9%
<b>New England</b>							
Usage (kWh)	1,909	2,227	2,122	2,188	2,164	1,910	-11.7%
Price (cents/kWh)	17.34	16.14	15.85	15.50	16.02	17.45	8.9%
Expenditures	\$331	\$359	\$336	\$339	\$347	\$333	-3.9%
<b>Mid-Atlantic</b>							
Usage (kWh)	2,203	2,644	2,531	2,548	2,438	2,256	-7.4%
Price (cents/kWh)	15.85	16.66	16.39	15.63	16.39	17.23	5.2%
Expenditures	\$349	\$440	\$415	\$398	\$399	\$389	-2.7%
<b>East North Central</b>							
Usage (kWh)	2,471	3,073	2,975	3,048	2,612	2,579	-1.3%
Price (cents/kWh)	11.33	11.94	12.17	12.08	12.42	13.17	6.1%
Expenditures	\$280	\$367	\$362	\$368	\$324	\$340	4.7%
<b>West North Central</b>							
Usage (kWh)	2,982	3,558	3,517	3,547	3,066	3,007	-1.9%
Price (cents/kWh)	10.21	10.74	11.16	11.50	12.25	12.53	2.3%
Expenditures	\$305	\$382	\$393	\$408	\$376	\$377	0.4%
<b>South Atlantic</b>							
Usage (kWh)	3,974	4,411	4,277	4,002	3,761	3,764	0.1%
Price (cents/kWh)	11.54	11.39	11.48	11.65	11.73	12.12	3.4%
Expenditures	\$459	\$502	\$491	\$466	\$441	\$456	3.5%
<b>East South Central</b>							
Usage (kWh)	4,247	4,901	4,750	4,467	4,061	4,122	1.5%
Price (cents/kWh)	9.77	9.90	10.28	10.36	10.73	11.10	3.5%
Expenditures	\$415	\$485	\$488	\$463	\$436	\$457	5.0%
<b>West South Central</b>							
Usage (kWh)	4,652	4,830	5,231	4,781	4,502	4,369	-3.0%
Price (cents/kWh)	11.05	10.86	10.64	10.27	10.93	11.45	4.7%
Expenditures	\$514	\$525	\$557	\$491	\$492	\$500	1.7%
<b>Mountain</b>							
Usage (kWh)	3,242	3,340	3,322	3,440	3,388	3,324	-1.9%
Price (cents/kWh)	10.83	11.25	11.29	11.55	11.98	12.43	3.8%
Expenditures	\$351	\$376	\$375	\$397	\$406	\$413	1.8%
<b>Pacific</b>							
Usage (kWh)	2,080	2,006	2,022	2,078	2,033	2,078	2.2%
Price (cents/kWh)	13.23	12.95	13.22	13.78	14.55	14.46	-0.6%
Expenditures	\$275	\$260	\$267	\$286	\$296	\$300	1.6%

Notes: kWh = kilowatthours. All data cover the 3-month period of June-August of each year. Usage amounts represent total residential retail electricity sales per customer. Prices and expenditures are not adjusted for inflation.

Source: EIA Form-861 and Form-826 databases, Short-Term Energy Outlook.



**Table 1. U.S. Energy Markets Summary**

U.S. Energy Information Administration | Short-Term Energy Outlook - September 2014

	2013				2014				2015				Year		
	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	2013	2014	2015
<b>Energy Supply</b>															
Crude Oil Production (a) (million barrels per day) .....	7.12	7.28	7.55	7.84	8.06	8.45	8.60	9.01	9.32	9.52	9.51	9.77	7.45	8.53	9.53
Dry Natural Gas Production (billion cubic feet per day) .....	65.46	66.21	66.76	67.64	68.23	69.73	70.24	70.80	71.21	71.15	71.00	71.25	66.53	69.76	71.15
Coal Production (million short tons) .....	245	243	257	239	242	245	255	256	255	241	256	251	984	998	1,002
<b>Energy Consumption</b>															
Liquid Fuels (million barrels per day) .....	18.64	18.72	19.21	19.26	18.81	18.71	19.14	19.03	18.91	18.99	19.26	19.14	18.96	18.92	19.08
Natural Gas (billion cubic feet per day) .....	88.20	59.66	60.76	76.96	94.74	60.45	60.81	74.84	89.61	62.17	63.49	76.12	71.34	72.62	72.79
Coal (b) (million short tons) .....	229	216	253	226	249	212	254	229	236	209	251	222	925	943	918
Electricity (billion kilowatt hours per day) .....	10.39	10.03	11.55	10.00	10.91	10.03	11.50	9.94	10.72	10.10	11.71	10.04	10.50	10.60	10.64
Renewables (c) (quadrillion Btu) .....	2.11	2.32	2.08	2.11	2.17	2.36	2.12	2.11	2.23	2.43	2.21	2.23	8.62	8.76	9.10
Total Energy Consumption (d) (quadrillion Btu) .....	25.45	22.91	24.12	25.05	26.62	23.12	24.09	24.66	25.93	23.32	24.50	24.85	97.53	98.49	98.60
<b>Energy Prices</b>															
Crude Oil (e) (dollars per barrel) .....	101.14	99.45	105.24	95.97	97.56	101.32	97.13	92.00	92.00	93.67	96.02	93.00	100.46	97.01	93.72
Natural Gas Henry Hub Spot (dollars per million Btu) .....	3.49	4.01	3.55	3.85	5.21	4.61	3.96	4.05	4.06	3.67	3.80	3.95	3.73	4.46	3.87
Coal (dollars per million Btu) .....	2.35	2.37	2.33	2.34	2.33	2.39	2.36	2.35	2.36	2.36	2.35	2.36	2.35	2.36	2.36
<b>Macroeconomic</b>															
Real Gross Domestic Product (billion chained 2009 dollars - SAAR) .....	15,538	15,607	15,780	15,916	15,832	15,986	16,122	16,226	16,335	16,435	16,549	16,673	15,710	16,041	16,498
Percent change from prior year .....	1.7	1.8	2.3	3.1	1.9	2.4	2.2	1.9	3.2	2.8	2.7	2.8	2.2	2.1	2.8
GDP Implicit Price Deflator (Index, 2009=100) .....	106.2	106.5	106.9	107.3	107.7	108.2	108.5	109.1	109.7	110.2	110.6	111.2	106.7	108.4	110.4
Percent change from prior year .....	1.6	1.5	1.4	1.4	1.4	1.6	1.5	1.7	1.9	1.8	1.9	1.9	1.5	1.6	1.9
Real Disposable Personal Income (billion chained 2009 dollars - SAAR) .....	11,539	11,647	11,706	11,712	11,813	11,922	11,987	12,034	12,145	12,220	12,308	12,406	11,651	11,939	12,270
Percent change from prior year .....	-0.1	0.3	0.9	-1.9	2.4	2.4	2.4	2.8	2.8	2.5	2.7	3.1	-0.2	2.5	2.8
Manufacturing Production Index (Index, 2007=100) .....	97.1	97.5	97.9	99.0	99.4	101.1	102.2	102.7	103.5	104.4	105.4	106.3	97.9	101.3	104.9
Percent change from prior year .....	3.2	2.7	2.7	3.2	2.4	3.7	4.4	3.7	4.1	3.3	3.2	3.5	2.9	3.5	3.5
<b>Weather</b>															
U.S. Heating Degree-Days .....	2,221	510	76	1,660	2,426	470	80	1,537	2,128	479	78	1,541	4,467	4,512	4,225
U.S. Cooling Degree-Days .....	36	378	803	87	33	408	794	91	38	392	842	91	1,304	1,325	1,363

- = no data available

Prices are not adjusted for inflation.

(a) Includes lease condensate.

(b) Total consumption includes Independent Power Producer (IPP) consumption.

(c) Renewable energy includes minor components of non-marketed renewable energy that is neither bought nor sold, either directly or indirectly, as inputs to marketed energy.

EIA does not estimate or project end-use consumption of non-marketed renewable energy.

(d) The conversion from physical units to Btu is calculated using a subset of conversion factors used in the calculations of gross energy consumption in EIA's Monthly Energy Review. Consequently, the historical data may not precisely match those published in the MER or the Annual Energy Review (AER).

(e) Refers to the refiner average acquisition cost (RAC) of crude oil.

**Notes:** The approximate break between historical and forecast values is shown with historical data printed in bold; estimates and forecasts in italics.**Historical data:** Latest data available from Energy Information Administration databases supporting the following reports: *Petroleum Supply Monthly*, DOE/EIA-0109;*Petroleum Supply Annual*, DOE/EIA-0340/2; *Weekly Petroleum Status Report*, DOE/EIA-0208; *Petroleum Marketing Monthly*, DOE/EIA-0380; *Natural Gas Monthly*, DOE/EIA-0130; *Electric Power Monthly*, DOE/EIA-0226; *Quarterly Coal Report*, DOE/EIA-0121; and *International Petroleum Monthly*, DOE/EIA-0520.

Minor discrepancies with published historical data are due to independent rounding.

**Projections:** EIA Regional Short-Term Energy Model. Macroeconomic projections are based on Global Insight Model of the U.S. Economy.

Weather projections from National Oceanic and Atmospheric Administration.

**Table 2. U.S. Energy Prices**

U.S. Energy Information Administration | Short-Term Energy Outlook - September 2014

	2013				2014				2015				Year		
	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	2013	2014	2015
<b>Crude Oil</b> (dollars per barrel)															
West Texas Intermediate Spot Average .....	<b>94.34</b>	<b>94.10</b>	<b>105.84</b>	<b>97.34</b>	<b>98.75</b>	<b>103.35</b>	<i>98.04</i>	<i>93.00</i>	<i>93.00</i>	<i>94.67</i>	<i>97.00</i>	<i>94.00</i>	<b>97.91</b>	<i>98.28</i>	<i>94.67</i>
Brent Spot Average .....	<b>112.49</b>	<b>102.58</b>	<b>110.27</b>	<b>109.21</b>	<b>108.17</b>	<b>109.70</b>	<i>103.46</i>	<i>102.67</i>	<i>103.00</i>	<i>103.33</i>	<i>103.33</i>	<i>102.33</i>	<b>108.64</b>	<i>106.00</i>	<i>103.00</i>
Imported Average .....	<b>98.71</b>	<b>97.39</b>	<b>103.07</b>	<b>92.95</b>	<b>94.10</b>	<b>98.54</b>	<i>94.61</i>	<i>89.50</i>	<i>89.50</i>	<i>91.17</i>	<i>93.51</i>	<i>90.50</i>	<b>98.12</b>	<i>94.28</i>	<i>91.23</i>
Refiner Average Acquisition Cost .....	<b>101.14</b>	<b>99.45</b>	<b>105.24</b>	<b>95.97</b>	<b>97.56</b>	<b>101.32</b>	<i>97.13</i>	<i>92.00</i>	<i>92.00</i>	<i>93.67</i>	<i>96.02</i>	<i>93.00</i>	<b>100.46</b>	<i>97.01</i>	<i>93.72</i>
<b>Liquid Fuels</b> (cents per gallon)															
<b>Refiner Prices for Resale</b>															
Gasoline .....	<b>289</b>	<b>290</b>	<b>288</b>	<b>259</b>	<b>272</b>	<b>298</b>	<i>275</i>	<i>256</i>	<i>265</i>	<i>285</i>	<i>279</i>	<i>259</i>	<b>281</b>	<i>275</i>	<i>272</i>
Diesel Fuel .....	<b>312</b>	<b>295</b>	<b>306</b>	<b>299</b>	<b>303</b>	<b>300</b>	<i>285</i>	<i>285</i>	<i>290</i>	<i>295</i>	<i>294</i>	<i>291</i>	<b>303</b>	<i>293</i>	<i>292</i>
Heating Oil .....	<b>308</b>	<b>276</b>	<b>295</b>	<b>296</b>	<b>303</b>	<b>289</b>	<i>276</i>	<i>282</i>	<i>290</i>	<i>284</i>	<i>280</i>	<i>284</i>	<b>297</b>	<i>288</i>	<i>286</i>
<b>Refiner Prices to End Users</b>															
Jet Fuel .....	<b>316</b>	<b>287</b>	<b>298</b>	<b>294</b>	<b>297</b>	<b>295</b>	<i>284</i>	<i>282</i>	<i>288</i>	<i>292</i>	<i>289</i>	<i>286</i>	<b>298</b>	<i>289</i>	<i>289</i>
No. 6 Residual Fuel Oil (a) .....	<b>252</b>	<b>244</b>	<b>247</b>	<b>250</b>	<b>249</b>	<b>245</b>	<i>247</i>	<i>236</i>	<i>231</i>	<i>231</i>	<i>238</i>	<i>233</i>	<b>248</b>	<i>244</i>	<i>233</i>
<b>Retail Prices Including Taxes</b>															
Gasoline Regular Grade (b) .....	<b>357</b>	<b>360</b>	<b>357</b>	<b>329</b>	<b>340</b>	<b>368</b>	<i>350</i>	<i>325</i>	<i>331</i>	<i>354</i>	<i>349</i>	<i>328</i>	<b>351</b>	<i>346</i>	<i>341</i>
Gasoline All Grades (b) .....	<b>363</b>	<b>367</b>	<b>364</b>	<b>337</b>	<b>348</b>	<b>375</b>	<i>358</i>	<i>333</i>	<i>339</i>	<i>362</i>	<i>357</i>	<i>337</i>	<b>358</b>	<i>354</i>	<i>349</i>
On-highway Diesel Fuel .....	<b>403</b>	<b>388</b>	<b>391</b>	<b>387</b>	<b>396</b>	<b>394</b>	<i>383</i>	<i>374</i>	<i>378</i>	<i>385</i>	<i>382</i>	<i>381</i>	<b>392</b>	<i>386</i>	<i>382</i>
Heating Oil .....	<b>389</b>	<b>365</b>	<b>366</b>	<b>373</b>	<b>397</b>	<b>382</b>	<i>362</i>	<i>362</i>	<i>374</i>	<i>369</i>	<i>358</i>	<i>366</i>	<b>378</b>	<i>381</i>	<i>369</i>
<b>Natural Gas</b>															
Henry Hub Spot (dollars per thousand cubic feet) .....	<b>3.59</b>	<b>4.13</b>	<b>3.66</b>	<b>3.97</b>	<b>5.36</b>	<b>4.75</b>	<i>4.08</i>	<i>4.17</i>	<i>4.19</i>	<i>3.78</i>	<i>3.91</i>	<i>4.07</i>	<b>3.84</b>	<i>4.59</i>	<i>3.99</i>
Henry Hub Spot (dollars per Million Btu) .....	<b>3.49</b>	<b>4.01</b>	<b>3.55</b>	<b>3.85</b>	<b>5.21</b>	<b>4.61</b>	<i>3.96</i>	<i>4.05</i>	<i>4.06</i>	<i>3.67</i>	<i>3.80</i>	<i>3.95</i>	<b>3.73</b>	<i>4.46</i>	<i>3.87</i>
<b>End-Use Prices</b> (dollars per thousand cubic feet)															
Industrial Sector .....	<b>4.57</b>	<b>4.98</b>	<b>4.41</b>	<b>4.69</b>	<b>6.16</b>	<b>5.60</b>	<i>4.95</i>	<i>5.07</i>	<i>5.31</i>	<i>4.60</i>	<i>4.75</i>	<i>5.09</i>	<b>4.66</b>	<i>5.46</i>	<i>4.96</i>
Commercial Sector .....	<b>7.83</b>	<b>8.59</b>	<b>8.95</b>	<b>7.98</b>	<b>8.66</b>	<b>9.59</b>	<i>9.77</i>	<i>8.95</i>	<i>9.01</i>	<i>9.03</i>	<i>9.52</i>	<i>8.96</i>	<b>8.12</b>	<i>9.00</i>	<i>9.05</i>
Residential Sector .....	<b>9.24</b>	<b>11.88</b>	<b>16.13</b>	<b>9.93</b>	<b>9.81</b>	<b>13.17</b>	<i>16.88</i>	<i>11.08</i>	<i>10.06</i>	<i>12.48</i>	<i>16.55</i>	<i>11.08</i>	<b>10.31</b>	<i>11.09</i>	<i>11.18</i>
<b>Electricity</b>															
<b>Power Generation Fuel Costs</b> (dollars per million Btu)															
Coal .....	<b>2.35</b>	<b>2.37</b>	<b>2.33</b>	<b>2.34</b>	<b>2.33</b>	<b>2.39</b>	<i>2.36</i>	<i>2.35</i>	<i>2.36</i>	<i>2.36</i>	<i>2.35</i>	<i>2.36</i>	<b>2.35</b>	<i>2.36</i>	<i>2.36</i>
Natural Gas .....	<b>4.35</b>	<b>4.56</b>	<b>4.06</b>	<b>4.41</b>	<b>6.82</b>	<b>4.93</b>	<i>4.61</i>	<i>4.93</i>	<i>4.93</i>	<i>4.33</i>	<i>4.46</i>	<i>4.85</i>	<b>4.32</b>	<i>5.25</i>	<i>4.62</i>
Residual Fuel Oil (c) .....	<b>19.37</b>	<b>19.83</b>	<b>18.76</b>	<b>19.47</b>	<b>19.95</b>	<b>21.09</b>	<i>19.42</i>	<i>18.86</i>	<i>18.44</i>	<i>18.52</i>	<i>18.36</i>	<i>18.24</i>	<b>19.33</b>	<i>19.85</i>	<i>18.39</i>
Distillate Fuel Oil .....	<b>23.44</b>	<b>22.62</b>	<b>23.23</b>	<b>22.97</b>	<b>23.39</b>	<b>22.74</b>	<i>22.10</i>	<i>22.64</i>	<i>23.24</i>	<i>23.12</i>	<i>22.90</i>	<i>23.40</i>	<b>23.08</b>	<i>22.98</i>	<i>23.16</i>
<b>End-Use Prices</b> (cents per kilowatthour)															
Industrial Sector .....	<b>6.55</b>	<b>6.79</b>	<b>7.24</b>	<b>6.67</b>	<b>7.02</b>	<b>6.94</b>	<i>7.41</i>	<i>6.82</i>	<i>6.78</i>	<i>6.99</i>	<i>7.44</i>	<i>6.84</i>	<b>6.82</b>	<i>7.05</i>	<i>7.02</i>
Commercial Sector .....	<b>9.96</b>	<b>10.33</b>	<b>10.68</b>	<b>10.14</b>	<b>10.57</b>	<b>10.63</b>	<i>10.99</i>	<i>10.44</i>	<i>10.66</i>	<i>10.72</i>	<i>11.08</i>	<i>10.54</i>	<b>10.29</b>	<i>10.67</i>	<i>10.76</i>
Residential Sector .....	<b>11.56</b>	<b>12.31</b>	<b>12.54</b>	<b>12.01</b>	<b>11.90</b>	<b>12.73</b>	<i>12.98</i>	<i>12.36</i>	<i>12.28</i>	<i>12.91</i>	<i>13.09</i>	<i>12.49</i>	<b>12.12</b>	<i>12.49</i>	<i>12.70</i>

- = no data available

Prices are not adjusted for inflation.

(a) Average for all sulfur contents.

(b) Average self-service cash price.

(c) Includes fuel oils No. 4, No. 5, No. 6, and topped crude.

**Notes:** The approximate break between historical and forecast values is shown with historical data printed in bold; estimates and forecasts in italics.

Prices exclude taxes unless otherwise noted.

**Historical data:** Latest data available from Energy Information Administration databases supporting the following reports: *Petroleum Marketing Monthly*, DOE/EIA-0380; *Weekly Petroleum Status Report*, DOE/EIA-0208; *Natural Gas Monthly*, DOE/EIA-0130; *Electric Power Monthly*, DOE/EIA-0226; and *Monthly Energy Review*, DOE/EIA-0035.

 WTI and Brent crude oils, and Henry Hub natural gas spot prices from Reuter's News Service (<http://www.reuters.com>).

Minor discrepancies with published historical data are due to independent rounding.

**Projections:** EIA Regional Short-Term Energy Model.

**Table 3a. International Petroleum and Other Liquids Production, Consumption, and Inventories**

U.S. Energy Information Administration | Short-Term Energy Outlook - September 2014

	2013				2014				2015				Year		
	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	2013	2014	2015
<b>Supply (million barrels per day) (a)</b>															
OECD .....	23.10	23.25	23.88	24.55	24.92	25.30	25.46	25.79	26.11	26.18	26.33	26.89	23.70	25.37	26.38
U.S. (50 States) .....	11.69	12.10	12.62	12.99	13.05	13.76	13.96	14.33	14.62	14.97	15.05	15.32	12.35	13.78	14.99
Canada .....	4.12	3.86	4.11	4.31	4.37	4.32	4.36	4.50	4.45	4.30	4.45	4.69	4.10	4.39	4.47
Mexico .....	2.93	2.89	2.88	2.90	2.91	2.89	2.86	2.76	2.82	2.80	2.77	2.74	2.90	2.85	2.78
North Sea (b) .....	2.90	2.89	2.74	2.88	3.07	2.82	2.75	2.70	2.72	2.61	2.54	2.63	2.85	2.83	2.62
Other OECD .....	1.46	1.51	1.53	1.47	1.51	1.52	1.53	1.51	1.50	1.50	1.52	1.50	1.49	1.52	1.50
Non-OECD .....	65.84	66.81	66.74	66.18	65.90	66.11	66.75	66.47	65.98	66.76	67.33	66.50	66.40	66.31	66.64
OPEC .....	35.97	36.47	36.21	35.43	35.87	35.55	36.00	35.65	35.67	35.87	36.29	35.61	36.02	35.77	35.86
Crude Oil Portion .....	29.85	30.38	30.12	29.30	29.73	29.46	29.93	29.45	29.42	29.59	29.93	29.21	29.91	29.64	29.54
Other Liquids .....	6.12	6.09	6.09	6.12	6.14	6.09	6.08	6.20	6.25	6.28	6.36	6.39	6.11	6.13	6.32
Eurasia .....	13.52	13.45	13.50	13.73	13.64	13.58	13.64	13.70	13.66	13.64	13.68	13.66	13.55	13.64	13.66
China .....	4.45	4.49	4.37	4.52	4.46	4.49	4.50	4.54	4.57	4.60	4.61	4.61	4.46	4.50	4.60
Other Non-OECD .....	11.90	12.40	12.66	12.51	11.93	12.49	12.62	12.58	12.08	12.65	12.75	12.63	12.37	12.41	12.53
Total World Supply .....	88.94	90.06	90.62	90.74	90.82	91.41	92.21	92.26	92.09	92.94	93.65	93.38	90.10	91.68	93.02
Non-OPEC Supply .....	52.97	53.59	54.42	55.31	54.95	55.86	56.21	56.61	56.42	57.07	57.36	57.78	54.08	55.91	57.16
<b>Consumption (million barrels per day) (c)</b>															
OECD .....	45.86	45.62	46.35	46.56	45.82	45.09	46.08	46.54	46.36	45.18	45.99	46.41	46.10	45.89	45.99
U.S. (50 States) .....	18.64	18.72	19.21	19.26	18.81	18.71	19.14	19.03	18.91	18.99	19.26	19.14	18.96	18.92	19.08
U.S. Territories .....	0.32	0.32	0.32	0.32	0.34	0.34	0.34	0.34	0.36	0.36	0.36	0.36	0.32	0.34	0.36
Canada .....	2.28	2.31	2.30	2.32	2.33	2.25	2.37	2.35	2.34	2.28	2.39	2.37	2.30	2.32	2.34
Europe .....	13.19	13.81	13.95	13.53	13.02	13.48	13.76	13.73	13.46	13.19	13.63	13.59	13.62	13.50	13.47
Japan .....	5.08	4.11	4.32	4.75	5.05	4.01	4.15	4.54	4.72	3.97	4.00	4.39	4.56	4.43	4.27
Other OECD .....	6.34	6.35	6.25	6.38	6.27	6.30	6.32	6.56	6.57	6.39	6.33	6.57	6.33	6.36	6.46
Non-OECD .....	43.52	44.45	44.87	44.80	44.57	45.91	46.35	45.80	45.66	47.27	47.61	47.04	44.41	45.66	46.90
Eurasia .....	4.56	4.49	4.76	4.74	4.66	4.59	4.86	4.84	4.70	4.64	4.91	4.89	4.64	4.74	4.79
Europe .....	0.70	0.71	0.73	0.72	0.71	0.71	0.73	0.73	0.71	0.72	0.74	0.74	0.71	0.72	0.73
China .....	10.50	10.56	10.51	10.87	10.58	11.16	11.11	11.07	11.00	11.60	11.55	11.50	10.61	10.98	11.41
Other Asia .....	11.14	11.36	10.94	11.23	11.39	11.62	11.18	11.48	11.64	11.87	11.42	11.72	11.17	11.42	11.66
Other Non-OECD .....	16.63	17.33	17.93	17.24	17.24	17.83	18.46	17.68	17.61	18.44	18.99	18.18	17.29	17.80	18.31
Total World Consumption .....	89.38	90.06	91.22	91.36	90.39	91.01	92.43	92.35	92.03	92.45	93.60	93.45	90.51	91.55	92.89
<b>Inventory Net Withdrawals (million barrels per day)</b>															
U.S. (50 States) .....	0.16	-0.28	-0.16	0.78	0.09	-0.67	-0.08	0.48	-0.06	-0.35	-0.17	0.47	0.13	-0.04	-0.03
Other OECD .....	-0.22	0.34	-0.27	0.67	-0.26	0.21	0.11	-0.15	0.00	-0.05	0.04	-0.15	0.13	-0.02	-0.04
Other Stock Draws and Balance .....	0.49	-0.06	1.02	-0.83	-0.26	0.05	0.19	-0.24	0.00	-0.10	0.07	-0.25	0.16	-0.07	-0.07
Total Stock Draw .....	0.44	0.00	0.60	0.62	-0.43	-0.41	0.22	0.09	-0.06	-0.49	-0.06	0.07	0.42	-0.13	-0.13
<b>End-of-period Inventories (million barrels)</b>															
U.S. Commercial Inventory .....	1,097	1,123	1,137	1,065	1,057	1,123	1,130	1,086	1,092	1,123	1,139	1,096	1,065	1,086	1,096
OECD Commercial Inventory .....	2,651	2,646	2,685	2,551	2,567	2,613	2,611	2,580	2,585	2,622	2,633	2,604	2,551	2,580	2,604

- = no data available

OECD = Organization for Economic Cooperation and Development: Australia, Austria, Belgium, Canada, Chile, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Israel, Italy, Japan, Luxembourg, Mexico, the Netherlands, New Zealand, Norway, Poland, Portugal, Slovakia, Slovenia, South Korea, Spain, Sweden, Switzerland, Turkey, the United Kingdom, and the United States.

OPEC = Organization of Petroleum Exporting Countries: Algeria, Angola, Ecuador, Iran, Iraq, Kuwait, Libya, Nigeria, Qatar, Saudi Arabia, the United Arab Emirates, Venezuela.

(a) Supply includes production of crude oil (including lease condensates), natural gas plant liquids, biofuels, other liquids, and refinery processing gains.

(b) Includes offshore supply from Denmark, Germany, the Netherlands, Norway, and the United Kingdom.

(c) Consumption of petroleum by the OECD countries is synonymous with "petroleum product supplied," defined in the glossary of the EIA *Petroleum Supply Monthly*, DOE/EIA-0109.

Consumption of petroleum by the non-OECD countries is "apparent consumption," which includes internal consumption, refinery fuel and loss, and bunkering.

**Notes:** The approximate break between historical and forecast values is shown with historical data printed in bold; estimates and forecasts in italics.

**Historical data:** Latest data available from Energy Information Administration international energy statistics.

Minor discrepancies with published historical data are due to independent rounding.

**Projections:** EIA Regional Short-Term Energy Model.

**Table 3b. Non-OPEC Petroleum and Other Liquids Supply (million barrels per day)**

U.S. Energy Information Administration | Short-Term Energy Outlook - September 2014

	2013				2014				2015				Year		
	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	2013	2014	2015
<b>North America</b> .....	<b>18.73</b>	<b>18.85</b>	<b>19.61</b>	<b>20.20</b>	<b>20.34</b>	<b>20.97</b>	<i>21.18</i>	<i>21.58</i>	<i>21.90</i>	<i>22.07</i>	<i>22.27</i>	<i>22.76</i>	<b>19.36</b>	<i>21.02</i>	<i>22.25</i>
Canada .....	<b>4.12</b>	<b>3.86</b>	<b>4.11</b>	<b>4.31</b>	<b>4.37</b>	<b>4.32</b>	<i>4.36</i>	<i>4.50</i>	<i>4.45</i>	<i>4.30</i>	<i>4.45</i>	<i>4.69</i>	<b>4.10</b>	<i>4.39</i>	<i>4.47</i>
Mexico .....	<b>2.93</b>	<b>2.89</b>	<b>2.88</b>	<b>2.90</b>	<b>2.91</b>	<b>2.89</b>	<i>2.86</i>	<i>2.76</i>	<i>2.82</i>	<i>2.80</i>	<i>2.77</i>	<i>2.74</i>	<b>2.90</b>	<i>2.85</i>	<i>2.78</i>
United States .....	<b>11.69</b>	<b>12.10</b>	<b>12.62</b>	<b>12.99</b>	<b>13.05</b>	<b>13.76</b>	<i>13.96</i>	<i>14.33</i>	<i>14.62</i>	<i>14.97</i>	<i>15.05</i>	<i>15.32</i>	<b>12.35</b>	<i>13.78</i>	<i>14.99</i>
<b>Central and South America</b> .....	<b>4.42</b>	<b>4.94</b>	<b>5.25</b>	<b>5.03</b>	<b>4.55</b>	<b>5.13</b>	<i>5.21</i>	<i>5.07</i>	<i>4.59</i>	<i>5.17</i>	<i>5.25</i>	<i>5.10</i>	<b>4.91</b>	<i>4.99</i>	<i>5.03</i>
Argentina .....	<b>0.69</b>	<b>0.70</b>	<b>0.72</b>	<b>0.72</b>	<b>0.70</b>	<b>0.69</b>	<i>0.73</i>	<i>0.73</i>	<i>0.71</i>	<i>0.70</i>	<i>0.74</i>	<i>0.74</i>	<b>0.71</b>	<i>0.71</i>	<i>0.72</i>
Brazil .....	<b>2.21</b>	<b>2.74</b>	<b>3.01</b>	<b>2.81</b>	<b>2.34</b>	<b>2.97</b>	<i>2.96</i>	<i>2.83</i>	<i>2.36</i>	<i>2.99</i>	<i>2.98</i>	<i>2.85</i>	<b>2.69</b>	<i>2.78</i>	<i>2.80</i>
Colombia .....	<b>1.03</b>	<b>1.02</b>	<b>1.04</b>	<b>1.03</b>	<b>1.02</b>	<b>0.99</b>	<i>1.04</i>	<i>1.02</i>	<i>1.02</i>	<i>0.99</i>	<i>1.03</i>	<i>1.02</i>	<b>1.03</b>	<i>1.02</i>	<i>1.01</i>
Other Central and S. America .....	<b>0.49</b>	<b>0.48</b>	<b>0.48</b>	<b>0.47</b>	<b>0.49</b>	<b>0.48</b>	<i>0.48</i>	<i>0.49</i>	<i>0.50</i>	<i>0.50</i>	<i>0.49</i>	<i>0.49</i>	<b>0.48</b>	<i>0.49</i>	<i>0.49</i>
<b>Europe</b> .....	<b>3.84</b>	<b>3.83</b>	<b>3.70</b>	<b>3.83</b>	<b>4.02</b>	<b>3.77</b>	<i>3.69</i>	<i>3.63</i>	<i>3.63</i>	<i>3.53</i>	<i>3.46</i>	<i>3.55</i>	<b>3.80</b>	<i>3.77</i>	<i>3.54</i>
Norway .....	<b>1.82</b>	<b>1.82</b>	<b>1.80</b>	<b>1.82</b>	<b>1.94</b>	<b>1.78</b>	<i>1.86</i>	<i>1.77</i>	<i>1.82</i>	<i>1.79</i>	<i>1.77</i>	<i>1.85</i>	<b>1.81</b>	<i>1.84</i>	<i>1.81</i>
United Kingdom (offshore) .....	<b>0.85</b>	<b>0.86</b>	<b>0.74</b>	<b>0.86</b>	<b>0.93</b>	<b>0.85</b>	<i>0.69</i>	<i>0.70</i>	<i>0.68</i>	<i>0.62</i>	<i>0.57</i>	<i>0.58</i>	<b>0.83</b>	<i>0.79</i>	<i>0.61</i>
Other North Sea .....	<b>0.23</b>	<b>0.21</b>	<b>0.20</b>	<b>0.20</b>	<b>0.20</b>	<b>0.19</b>	<i>0.21</i>	<i>0.23</i>	<i>0.22</i>	<i>0.20</i>	<i>0.20</i>	<i>0.20</i>	<b>0.21</b>	<i>0.21</i>	<i>0.20</i>
<b>Eurasia</b> .....	<b>13.54</b>	<b>13.47</b>	<b>13.51</b>	<b>13.74</b>	<b>13.65</b>	<b>13.60</b>	<i>13.65</i>	<i>13.71</i>	<i>13.68</i>	<i>13.65</i>	<i>13.69</i>	<i>13.67</i>	<b>13.56</b>	<i>13.65</i>	<i>13.67</i>
Azerbaijan .....	<b>0.90</b>	<b>0.89</b>	<b>0.86</b>	<b>0.87</b>	<b>0.85</b>	<b>0.86</b>	<i>0.85</i>	<i>0.84</i>	<i>0.83</i>	<i>0.82</i>	<i>0.80</i>	<i>0.78</i>	<b>0.88</b>	<i>0.85</i>	<i>0.81</i>
Kazakhstan .....	<b>1.67</b>	<b>1.61</b>	<b>1.61</b>	<b>1.74</b>	<b>1.73</b>	<b>1.66</b>	<i>1.73</i>	<i>1.73</i>	<i>1.73</i>	<i>1.73</i>	<i>1.72</i>	<i>1.72</i>	<b>1.66</b>	<i>1.72</i>	<i>1.73</i>
Russia .....	<b>10.47</b>	<b>10.47</b>	<b>10.55</b>	<b>10.64</b>	<b>10.60</b>	<b>10.57</b>	<i>10.52</i>	<i>10.61</i>	<i>10.59</i>	<i>10.58</i>	<i>10.64</i>	<i>10.64</i>	<b>10.53</b>	<i>10.58</i>	<i>10.61</i>
Turkmenistan .....	<b>0.26</b>	<b>0.26</b>	<b>0.26</b>	<b>0.26</b>	<b>0.27</b>	<b>0.28</b>	<i>0.29</i>	<i>0.29</i>	<i>0.29</i>	<i>0.29</i>	<i>0.29</i>	<i>0.29</i>	<b>0.26</b>	<i>0.28</i>	<i>0.29</i>
Other Eurasia .....	<b>0.23</b>	<b>0.23</b>	<b>0.23</b>	<b>0.23</b>	<b>0.20</b>	<b>0.22</b>	<i>0.25</i>	<i>0.24</i>	<i>0.23</i>	<i>0.23</i>	<i>0.23</i>	<i>0.23</i>	<b>0.23</b>	<i>0.23</i>	<i>0.23</i>
<b>Middle East</b> .....	<b>1.27</b>	<b>1.19</b>	<b>1.21</b>	<b>1.19</b>	<b>1.19</b>	<b>1.22</b>	<i>1.25</i>	<i>1.26</i>	<i>1.27</i>	<i>1.26</i>	<i>1.27</i>	<i>1.26</i>	<b>1.21</b>	<i>1.23</i>	<i>1.27</i>
Oman .....	<b>0.94</b>	<b>0.94</b>	<b>0.95</b>	<b>0.95</b>	<b>0.96</b>	<b>0.99</b>	<i>1.02</i>	<i>1.03</i>	<i>1.03</i>	<i>1.03</i>	<i>1.03</i>	<i>1.03</i>	<b>0.94</b>	<i>1.00</i>	<i>1.03</i>
Syria .....	<b>0.10</b>	<b>0.08</b>	<b>0.07</b>	<b>0.05</b>	<b>0.04</b>	<b>0.04</b>	<i>0.04</i>	<i>0.03</i>	<i>0.04</i>	<i>0.04</i>	<i>0.04</i>	<i>0.03</i>	<b>0.07</b>	<i>0.04</i>	<i>0.04</i>
Yemen .....	<b>0.17</b>	<b>0.11</b>	<b>0.13</b>	<b>0.13</b>	<b>0.13</b>	<b>0.13</b>	<i>0.13</i>	<i>0.13</i>	<i>0.14</i>	<i>0.13</i>	<i>0.13</i>	<i>0.13</i>	<b>0.13</b>	<i>0.13</i>	<i>0.13</i>
<b>Asia and Oceania</b> .....	<b>8.96</b>	<b>8.99</b>	<b>8.75</b>	<b>8.87</b>	<b>8.87</b>	<b>8.87</b>	<i>8.93</i>	<i>9.07</i>	<i>9.12</i>	<i>9.17</i>	<i>9.22</i>	<i>9.21</i>	<b>8.89</b>	<i>8.94</i>	<i>9.18</i>
Australia .....	<b>0.41</b>	<b>0.46</b>	<b>0.48</b>	<b>0.43</b>	<b>0.45</b>	<b>0.46</b>	<i>0.48</i>	<i>0.47</i>	<i>0.46</i>	<i>0.47</i>	<i>0.48</i>	<i>0.46</i>	<b>0.45</b>	<i>0.47</i>	<i>0.47</i>
China .....	<b>4.45</b>	<b>4.49</b>	<b>4.37</b>	<b>4.52</b>	<b>4.46</b>	<b>4.49</b>	<i>4.50</i>	<i>4.54</i>	<i>4.57</i>	<i>4.60</i>	<i>4.61</i>	<i>4.61</i>	<b>4.46</b>	<i>4.50</i>	<i>4.60</i>
India .....	<b>0.98</b>	<b>0.98</b>	<b>0.97</b>	<b>0.98</b>	<b>0.98</b>	<b>0.97</b>	<i>0.98</i>	<i>1.00</i>	<i>1.01</i>	<i>1.01</i>	<i>1.02</i>	<i>1.03</i>	<b>0.98</b>	<i>0.98</i>	<i>1.02</i>
Indonesia .....	<b>0.97</b>	<b>0.97</b>	<b>0.92</b>	<b>0.91</b>	<b>0.91</b>	<b>0.91</b>	<i>0.92</i>	<i>0.92</i>	<i>0.92</i>	<i>0.92</i>	<i>0.93</i>	<i>0.93</i>	<b>0.94</b>	<i>0.91</i>	<i>0.93</i>
Malaysia .....	<b>0.65</b>	<b>0.61</b>	<b>0.60</b>	<b>0.61</b>	<b>0.63</b>	<b>0.63</b>	<i>0.63</i>	<i>0.64</i>	<i>0.66</i>	<i>0.66</i>	<i>0.68</i>	<i>0.68</i>	<b>0.62</b>	<i>0.64</i>	<i>0.67</i>
Vietnam .....	<b>0.36</b>	<b>0.36</b>	<b>0.34</b>	<b>0.35</b>	<b>0.33</b>	<b>0.32</b>	<i>0.32</i>	<i>0.39</i>	<i>0.39</i>	<i>0.39</i>	<i>0.39</i>	<i>0.39</i>	<b>0.35</b>	<i>0.34</i>	<i>0.39</i>
<b>Africa</b> .....	<b>2.21</b>	<b>2.32</b>	<b>2.39</b>	<b>2.45</b>	<b>2.33</b>	<b>2.32</b>	<i>2.30</i>	<i>2.29</i>	<i>2.22</i>	<i>2.22</i>	<i>2.20</i>	<i>2.22</i>	<b>2.34</b>	<i>2.31</i>	<i>2.22</i>
Egypt .....	<b>0.71</b>	<b>0.70</b>	<b>0.69</b>	<b>0.68</b>	<b>0.67</b>	<b>0.67</b>	<i>0.66</i>	<i>0.65</i>	<i>0.64</i>	<i>0.63</i>	<i>0.62</i>	<i>0.61</i>	<b>0.69</b>	<i>0.66</i>	<i>0.63</i>
Equatorial Guinea .....	<b>0.28</b>	<b>0.28</b>	<b>0.30</b>	<b>0.31</b>	<b>0.27</b>	<b>0.27</b>	<i>0.27</i>	<i>0.27</i>	<i>0.24</i>	<i>0.24</i>	<i>0.24</i>	<i>0.24</i>	<b>0.29</b>	<i>0.27</i>	<i>0.24</i>
Gabon .....	<b>0.24</b>	<b>0.24</b>	<b>0.24</b>	<b>0.24</b>	<b>0.24</b>	<b>0.24</b>	<i>0.24</i>	<i>0.24</i>	<i>0.24</i>	<i>0.24</i>	<i>0.23</i>	<i>0.23</i>	<b>0.24</b>	<i>0.24</i>	<i>0.24</i>
Sudan .....	<b>0.11</b>	<b>0.24</b>	<b>0.30</b>	<b>0.35</b>	<b>0.26</b>	<b>0.26</b>	<i>0.26</i>	<i>0.26</i>	<i>0.25</i>	<i>0.25</i>	<i>0.25</i>	<i>0.25</i>	<b>0.25</b>	<i>0.26</i>	<i>0.25</i>
<b>Total non-OPEC liquids</b> .....	<b>52.97</b>	<b>53.59</b>	<b>54.42</b>	<b>55.31</b>	<b>54.95</b>	<b>55.86</b>	<i>56.21</i>	<i>56.61</i>	<i>56.42</i>	<i>57.07</i>	<i>57.36</i>	<i>57.78</i>	<b>54.08</b>	<i>55.91</i>	<i>57.16</i>
<b>OPEC non-crude liquids</b> .....	<b>6.12</b>	<b>6.09</b>	<b>6.09</b>	<b>6.12</b>	<b>6.14</b>	<b>6.09</b>	<i>6.08</i>	<i>6.20</i>	<i>6.25</i>	<i>6.28</i>	<i>6.36</i>	<i>6.39</i>	<b>6.11</b>	<i>6.13</i>	<i>6.32</i>
<b>Non-OPEC + OPEC non-crude</b> .....	<b>59.09</b>	<b>59.68</b>	<b>60.50</b>	<b>61.43</b>	<b>61.09</b>	<b>61.95</b>	<i>62.28</i>	<i>62.81</i>	<i>62.67</i>	<i>63.35</i>	<i>63.72</i>	<i>64.17</i>	<b>60.18</b>	<i>62.04</i>	<i>63.48</i>
<b>Unplanned non-OPEC Production Outages</b> .....	<b>0.91</b>	<b>0.90</b>	<b>0.88</b>	<b>0.64</b>	<b>0.66</b>	<b>0.67</b>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<b>0.83</b>	<i>n/a</i>	<i>n/a</i>

- = no data available

Sudan production represents total production from both north and south.

OPEC = Organization of Petroleum Exporting Countries: Algeria, Angola, Ecuador, Iran, Iraq, Kuwait, Libya, Nigeria, Qatar, Saudi Arabia, the United Arab Emirates, Venezuela.

**Notes:** The approximate break between historical and forecast values is shown with historical data printed in bold; estimates and forecasts in italics.

Supply includes production of crude oil (including lease condensates), natural gas plant liquids, biofuels, other liquids, and refinery processing gains.

Not all countries are shown in each region and sum of reported country volumes may not equal regional volumes.

**Historical data:** Latest data available from Energy Information Administration international energy statistics.

Minor discrepancies with published historical data are due to independent rounding.

**Projections:** EIA Regional Short-Term Energy Model.

**Table 3c. OPEC Crude Oil (excluding condensates) Supply (million barrels per day)**

U.S. Energy Information Administration | Short-Term Energy Outlook - September 2014

	2013				2014				2015				Year		
	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	2013	2014	2015
<b>Crude Oil</b>															
Algeria .....	1.20	1.20	1.20	1.17	1.15	1.15	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	1.19	<i>n/a</i>	<i>n/a</i>
Angola .....	1.75	1.78	1.70	1.73	1.63	1.63	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	1.74	<i>n/a</i>	<i>n/a</i>
Ecuador .....	0.51	0.52	0.53	0.54	0.55	0.56	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	0.53	<i>n/a</i>	<i>n/a</i>
Iran .....	2.68	2.68	2.68	2.69	2.80	2.80	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	2.68	<i>n/a</i>	<i>n/a</i>
Iraq .....	3.05	3.09	3.04	2.93	3.26	3.26	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	3.03	<i>n/a</i>	<i>n/a</i>
Kuwait .....	2.60	2.60	2.60	2.60	2.60	2.60	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	2.60	<i>n/a</i>	<i>n/a</i>
Libya .....	1.37	1.33	0.65	0.33	0.38	0.23	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	0.92	<i>n/a</i>	<i>n/a</i>
Nigeria .....	1.97	1.94	1.98	1.91	1.92	1.94	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	1.95	<i>n/a</i>	<i>n/a</i>
Qatar .....	0.73	0.73	0.73	0.73	0.74	0.75	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	0.73	<i>n/a</i>	<i>n/a</i>
Saudi Arabia .....	9.10	9.60	10.10	9.77	9.80	9.65	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	9.64	<i>n/a</i>	<i>n/a</i>
United Arab Emirates .....	2.70	2.70	2.70	2.70	2.70	2.70	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	2.70	<i>n/a</i>	<i>n/a</i>
Venezuela .....	2.20	2.20	2.20	2.20	2.20	2.20	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	2.20	<i>n/a</i>	<i>n/a</i>
OPEC Total .....	29.85	30.38	30.12	29.30	29.73	29.46	29.93	29.45	29.42	29.59	29.93	29.21	29.91	29.64	29.54
<b>Other Liquids</b> .....															
	6.12	6.09	6.09	6.12	6.14	6.09	6.08	6.20	6.25	6.28	6.36	6.39	6.11	6.13	6.32
<b>Total OPEC Supply</b> .....	35.97	36.47	36.21	35.43	35.87	35.55	36.00	35.65	35.67	35.87	36.29	35.61	36.02	35.77	35.86
<b>Crude Oil Production Capacity</b>															
Africa .....	6.28	6.26	5.52	5.14	5.07	4.94	5.40	5.57	5.61	5.64	5.69	5.73	5.80	5.24	5.67
South America .....	2.71	2.72	2.73	2.74	2.75	2.75	2.75	2.75	2.76	2.76	2.76	2.76	2.72	2.75	2.76
Middle East .....	23.56	23.62	23.53	23.42	23.86	23.87	23.76	23.81	23.85	23.85	23.85	23.85	23.53	23.83	23.85
OPEC Total .....	32.55	32.60	31.78	31.29	31.68	31.56	31.91	32.13	32.22	32.26	32.30	32.34	32.05	31.82	32.28
<b>Surplus Crude Oil Production Capacity</b>															
Africa .....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
South America .....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Middle East .....	2.69	2.21	1.67	1.99	1.95	2.09	1.98	2.68	2.80	2.67	2.37	3.13	2.14	2.18	2.74
OPEC Total .....	2.69	2.21	1.67	1.99	1.95	2.09	1.98	2.68	2.80	2.67	2.37	3.13	2.14	2.18	2.74
<b>Unplanned OPEC Production Outages</b> .....	1.34	1.43	2.16	2.52	2.34	2.66	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	1.87	<i>n/a</i>	<i>n/a</i>

- = no data available

OPEC = Organization of Petroleum Exporting Countries: Algeria, Angola, Libya, and Nigeria (Africa); Ecuador and Venezuela (South America); Iran, Iraq, Kuwait, Qatar, Saudi Arabia, and the United Arab Emirate (Middle East).

**Notes:** The approximate break between historical and forecast values is shown with historical data printed in bold; estimates and forecasts in italics.**Historical data:** Latest data available from Energy Information Administration international energy statistics.

Minor discrepancies with published historical data are due to independent rounding.

**Projections:** EIA Regional Short-Term Energy Model.

**Table 3d. World Petroleum and Other Liquids Consumption (million barrels per day)**

U.S. Energy Information Administration | Short-Term Energy Outlook - September 2014

	2013				2014				2015						
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2013	2014	2015
<b>North America</b> .....	<b>23.04</b>	<b>23.19</b>	<b>23.61</b>	<b>23.67</b>	<b>23.16</b>	<b>23.07</b>	23.64	23.52	23.36	23.40	23.76	23.62	<b>23.38</b>	23.35	23.54
Canada .....	<b>2.28</b>	<b>2.31</b>	<b>2.30</b>	<b>2.32</b>	<b>2.33</b>	<b>2.25</b>	2.37	2.35	2.34	2.28	2.39	2.37	<b>2.30</b>	2.32	2.34
Mexico .....	<b>2.11</b>	<b>2.14</b>	<b>2.09</b>	<b>2.08</b>	<b>2.02</b>	<b>2.10</b>	2.12	2.13	2.10	2.12	2.09	2.10	<b>2.11</b>	2.09	2.10
United States .....	<b>18.64</b>	<b>18.72</b>	<b>19.21</b>	<b>19.26</b>	<b>18.81</b>	<b>18.71</b>	19.14	19.03	18.91	18.99	19.26	19.14	<b>18.96</b>	18.92	19.08
<b>Central and South America</b> .....	<b>6.73</b>	<b>6.99</b>	<b>7.01</b>	<b>6.99</b>	<b>6.91</b>	<b>7.16</b>	7.21	7.18	7.03	7.29	7.33	7.31	<b>6.93</b>	7.12	7.24
Brazil .....	<b>2.83</b>	<b>2.94</b>	<b>3.00</b>	<b>2.99</b>	<b>2.97</b>	<b>3.08</b>	3.15	3.14	3.04	3.16	3.23	3.21	<b>2.94</b>	3.09	3.16
<b>Europe</b> .....	<b>13.88</b>	<b>14.51</b>	<b>14.68</b>	<b>14.25</b>	<b>13.73</b>	<b>14.20</b>	14.50	14.46	14.18	13.91	14.37	14.33	<b>14.33</b>	14.22	14.20
<b>Eurasia</b> .....	<b>4.58</b>	<b>4.52</b>	<b>4.79</b>	<b>4.77</b>	<b>4.68</b>	<b>4.62</b>	4.89	4.87	4.74	4.67	4.94	4.92	<b>4.66</b>	4.77	4.82
Russia .....	<b>3.24</b>	<b>3.19</b>	<b>3.38</b>	<b>3.37</b>	<b>3.30</b>	<b>3.25</b>	3.44	3.43	3.30	3.26	3.45	3.43	<b>3.30</b>	3.36	3.36
<b>Middle East</b> .....	<b>7.39</b>	<b>7.83</b>	<b>8.45</b>	<b>7.73</b>	<b>7.71</b>	<b>8.08</b>	8.75	7.95	7.92	8.50	9.07	8.23	<b>7.85</b>	8.12	8.43
<b>Asia and Oceania</b> .....	<b>30.31</b>	<b>29.59</b>	<b>29.30</b>	<b>30.54</b>	<b>30.65</b>	<b>30.33</b>	29.94	30.84	31.13	31.01	30.51	31.40	<b>29.94</b>	30.44	31.01
China .....	<b>10.50</b>	<b>10.56</b>	<b>10.51</b>	<b>10.87</b>	<b>10.58</b>	<b>11.16</b>	11.11	11.07	11.00	11.60	11.55	11.50	<b>10.61</b>	10.98	11.41
Japan .....	<b>5.08</b>	<b>4.11</b>	<b>4.32</b>	<b>4.75</b>	<b>5.05</b>	<b>4.01</b>	4.15	4.54	4.72	3.97	4.00	4.39	<b>4.56</b>	4.43	4.27
India .....	<b>3.78</b>	<b>3.77</b>	<b>3.45</b>	<b>3.73</b>	<b>3.89</b>	<b>3.87</b>	3.55	3.84	3.99	3.97	3.64	3.94	<b>3.68</b>	3.78	3.88
<b>Africa</b> .....	<b>3.44</b>	<b>3.44</b>	<b>3.39</b>	<b>3.41</b>	<b>3.55</b>	<b>3.55</b>	3.50	3.52	3.67	3.67	3.62	3.64	<b>3.42</b>	3.53	3.65
<b>Total OECD Liquid Fuels Consumption</b> .....	<b>45.86</b>	<b>45.62</b>	<b>46.35</b>	<b>46.56</b>	<b>45.82</b>	<b>45.09</b>	46.08	46.54	46.36	45.18	45.99	46.41	<b>46.10</b>	45.89	45.99
<b>Total non-OECD Liquid Fuels Consumption</b> .....	<b>43.52</b>	<b>44.45</b>	<b>44.87</b>	<b>44.80</b>	<b>44.57</b>	<b>45.91</b>	46.35	45.80	45.66	47.27	47.61	47.04	<b>44.41</b>	45.66	46.90
<b>Total World Liquid Fuels Consumption</b> .....	<b>89.38</b>	<b>90.06</b>	<b>91.22</b>	<b>91.36</b>	<b>90.39</b>	<b>91.01</b>	92.43	92.35	92.03	92.45	93.60	93.45	<b>90.51</b>	91.55	92.89
<b>Oil-weighted Real Gross Domestic Product (a)</b>															
World Index, 2010 Q1 = 100 .....	<b>109.8</b>	<b>110.7</b>	<b>111.7</b>	<b>112.6</b>	<b>113.0</b>	<b>113.7</b>	114.7	115.7	116.6	117.5	118.6	119.5	<b>111.2</b>	114.3	118.0
Percent change from prior year .....	<b>2.2</b>	<b>2.5</b>	<b>2.8</b>	<b>3.2</b>	<b>2.9</b>	<b>2.7</b>	2.7	2.7	3.2	3.4	3.3	3.3	<b>2.7</b>	2.7	3.3
OECD Index, 2010 Q1 = 100 .....	<b>105.2</b>	<b>105.7</b>	<b>106.5</b>	<b>107.1</b>	<b>107.3</b>	<b>107.7</b>	108.5	109.1	109.8	110.4	111.2	111.8	<b>106.1</b>	108.1	110.8
Percent change from prior year .....	<b>0.9</b>	<b>1.2</b>	<b>1.7</b>	<b>2.3</b>	<b>1.9</b>	<b>1.8</b>	1.8	1.9	2.3	2.6	2.5	2.4	<b>1.5</b>	1.9	2.5
Non-OECD Index, 2010 Q1 = 100 .....	<b>115.7</b>	<b>117.2</b>	<b>118.4</b>	<b>119.8</b>	<b>120.3</b>	<b>121.5</b>	122.9	124.3	125.4	126.8	128.3	129.7	<b>117.8</b>	122.3	127.6
Percent change from prior year .....	<b>3.9</b>	<b>4.2</b>	<b>4.2</b>	<b>4.4</b>	<b>4.0</b>	<b>3.7</b>	3.8	3.8	4.2	4.4	4.4	4.3	<b>4.2</b>	3.8	4.3
<b>Real U.S. Dollar Exchange Rate (a)</b>															
Index, January 2010 = 100 .....	<b>104.07</b>	<b>105.58</b>	<b>106.88</b>	<b>106.36</b>	<b>107.92</b>	<b>107.71</b>	108.28	109.15	109.64	110.04	110.36	110.89	<b>105.72</b>	108.26	110.23
Percent change from prior year .....	<b>3.8</b>	<b>3.6</b>	<b>4.1</b>	<b>3.0</b>	<b>3.7</b>	<b>2.0</b>	1.3	2.6	1.6	2.2	1.9	1.6	<b>3.6</b>	2.4	1.8

- = no data available

OECD = Organisation for Economic Co-operation and Development: Australia, Austria, Belgium, Canada, Chile, the Czech Republic, Denmark, Finland,

France, Germany, Greece, Hungary, Iceland, Ireland, Israel, Italy, Japan, Luxembourg, Mexico, the Netherlands, New Zealand, Norway, Poland, Portugal,

Slovakia, Slovenia, South Korea, Spain, Sweden, Switzerland, Turkey, the United Kingdom, and the United States.

(a) Weighted geometric mean of real indices for various countries with weights equal to each country's share of world oil consumption in the base period. Exchange rate is measured in foreign currency per U.S. dollar.

**Notes:** The approximate break between historical and forecast values is shown with historical data printed in bold; estimates and forecasts in italics.**Historical data:** Latest data available from Energy Information Administration international energy statistics.

Minor discrepancies with published historical data are due to independent rounding.

**Projections:** EIA Regional Short-Term Energy Model.

**Table 4a. U.S. Petroleum and Other Liquids Supply, Consumption, and Inventories**  
U.S. Energy Information Administration | Short-Term Energy Outlook - September 2014

	2013				2014				2015				Year		
	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	2013	2014	2015
<b>Supply (million barrels per day)</b>															
Crude Oil Supply															
Domestic Production (a)	7.12	7.28	7.55	7.84	8.06	8.45	8.60	9.01	9.32	9.52	9.51	9.77	7.45	8.53	9.53
Alaska	0.54	0.51	0.48	0.53	0.53	0.52	0.42	0.49	0.48	0.45	0.40	0.47	0.51	0.49	0.45
Federal Gulf of Mexico (b)	1.30	1.22	1.25	1.25	1.31	1.41	1.40	1.53	1.66	1.72	1.62	1.67	1.25	1.41	1.67
Lower 48 States (excl GOM)	5.28	5.55	5.83	6.06	6.22	6.53	6.78	6.99	7.18	7.36	7.50	7.63	5.68	6.63	7.42
Crude Oil Net Imports (c)	7.48	7.61	7.93	7.36	7.11	6.94	7.21	6.33	5.97	6.03	6.32	5.55	7.60	6.89	5.97
SPR Net Withdrawals	-0.01	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00
Commercial Inventory Net Withdrawals	-0.31	0.17	0.05	0.17	-0.30	0.00	0.23	0.08	-0.33	0.04	0.11	0.12	0.02	0.01	-0.02
Crude Oil Adjustment (d)	0.23	0.27	0.29	0.19	0.31	0.43	0.16	0.15	0.20	0.21	0.24	0.15	0.24	0.26	0.20
Total Crude Oil Input to Refineries	14.51	15.33	15.83	15.56	15.18	15.88	16.19	15.57	15.15	15.80	16.17	15.57	15.31	15.71	15.68
Other Supply															
Refinery Processing Gain	1.01	1.07	1.13	1.13	1.07	1.08	1.11	1.10	1.07	1.08	1.12	1.09	1.09	1.09	1.09
Natural Gas Plant Liquids Production	2.45	2.54	2.71	2.72	2.71	2.95	3.00	2.97	2.99	3.11	3.17	3.21	2.61	2.91	3.12
Renewables and Oxygenate Production (e)	0.92	1.00	1.01	1.08	1.01	1.06	1.06	1.05	1.05	1.05	1.05	1.05	1.00	1.05	1.05
Fuel Ethanol Production	0.81	0.87	0.86	0.93	0.91	0.94	0.93	0.93	0.94	0.93	0.93	0.93	0.87	0.93	0.93
Petroleum Products Adjustment (f)	0.19	0.20	0.22	0.22	0.20	0.22	0.19	0.19	0.20	0.20	0.20	0.20	0.21	0.20	0.20
Product Net Imports (c)	-0.96	-1.18	-1.59	-1.74	-1.73	-1.66	-2.10	-2.25	-1.82	-1.87	-2.17	-2.34	-1.37	-1.94	-2.05
Pentanes Plus	-0.09	-0.05	-0.13	-0.15	-0.15	-0.16	-0.16	-0.16	-0.15	-0.14	-0.16	-0.16	-0.10	-0.16	-0.15
Liquefied Petroleum Gas (g)	-0.05	-0.20	-0.23	-0.25	-0.21	-0.42	-0.46	-0.57	-0.49	-0.62	-0.62	-0.63	-0.18	-0.42	-0.59
Unfinished Oils	0.52	0.60	0.64	0.42	0.46	0.49	0.59	0.55	0.46	0.60	0.62	0.53	0.55	0.52	0.55
Other HC/Oxygenates	-0.06	-0.06	-0.04	-0.05	-0.09	-0.09	-0.10	-0.09	-0.09	-0.09	-0.10	-0.09	-0.05	-0.09	-0.09
Motor Gasoline Blend Comp.	0.41	0.63	0.46	0.36	0.29	0.58	0.46	0.52	0.50	0.55	0.57	0.51	0.46	0.47	0.53
Finished Motor Gasoline	-0.37	-0.22	-0.29	-0.43	-0.41	-0.36	-0.38	-0.54	-0.45	-0.34	-0.45	-0.56	-0.33	-0.42	-0.45
Jet Fuel	-0.07	-0.04	-0.07	-0.11	-0.07	-0.02	-0.11	-0.07	-0.08	-0.05	-0.07	-0.06	-0.07	-0.07	-0.07
Distillate Fuel Oil	-0.63	-0.91	-1.22	-1.16	-0.67	-1.01	-1.15	-1.15	-0.75	-0.95	-1.13	-1.10	-0.98	-0.99	-0.98
Residual Fuel Oil	-0.09	-0.22	-0.08	-0.15	-0.24	-0.18	-0.20	-0.18	-0.24	-0.25	-0.23	-0.21	-0.14	-0.20	-0.23
Other Oils (h)	-0.47	-0.50	-0.52	-0.51	-0.64	-0.60	-0.60	-0.57	-0.53	-0.58	-0.60	-0.59	-0.50	-0.60	-0.58
Product Inventory Net Withdrawals	0.48	-0.46	-0.21	0.61	0.39	-0.72	-0.32	0.40	0.27	-0.38	-0.28	0.35	0.11	-0.06	-0.01
Total Supply	18.58	18.55	18.62	18.75	18.84	18.77	19.01	19.03	18.91	18.99	19.26	19.14	18.63	18.91	19.08
<b>Consumption (million barrels per day)</b>															
Hydrocarbon Gas Liquids and Other Liquids															
Pentanes Plus	0.03	0.08	0.05	0.06	0.03	0.03	0.05	0.04	0.03	0.04	0.05	0.05	0.06	0.04	0.04
Liquefied Petroleum Gas (g)	2.67	2.14	2.25	2.71	2.63	2.03	2.17	2.57	2.69	2.22	2.29	2.64	2.44	2.35	2.46
Unfinished Oils	-0.03	-0.03	0.03	0.06	0.08	0.02	0.03	0.05	0.00	0.03	0.03	0.04	0.01	0.05	0.03
Finished Liquid Fuels															
Motor Gasoline	8.46	8.99	9.07	8.84	8.52	9.01	9.00	8.76	8.55	8.99	8.98	8.72	8.84	8.82	8.81
Fuel Ethanol blended into Motor Gasoline	0.81	0.89	0.87	0.88	0.84	0.89	0.88	0.87	0.85	0.88	0.88	0.86	0.86	0.87	0.87
Jet Fuel	1.35	1.45	1.50	1.44	1.40	1.47	1.54	1.42	1.39	1.47	1.51	1.43	1.43	1.46	1.45
Distillate Fuel Oil	3.94	3.76	3.68	3.94	4.17	3.93	3.89	3.97	4.16	3.96	3.96	4.12	3.83	3.99	4.06
Residual Fuel Oil	0.36	0.27	0.38	0.27	0.23	0.26	0.25	0.27	0.22	0.21	0.23	0.21	0.32	0.25	0.22
Other Oils (h)	1.87	2.07	2.25	1.94	1.75	1.96	2.21	1.95	1.87	2.04	2.21	1.93	2.03	1.97	2.01
Total Consumption	18.64	18.72	19.21	19.26	18.81	18.71	19.14	19.03	18.91	18.99	19.26	19.14	18.96	18.92	19.08
<b>Total Liquid Fuels Net Imports</b>	<b>6.39</b>	<b>6.51</b>	<b>5.96</b>	<b>5.18</b>	<b>5.38</b>	<b>5.46</b>	<b>5.11</b>	<b>4.08</b>	<b>4.15</b>	<b>4.16</b>	<b>4.15</b>	<b>3.20</b>	<b>6.01</b>	<b>5.00</b>	<b>3.91</b>
<b>End-of-period Inventories (million barrels)</b>															
Commercial Inventory															
Crude Oil (excluding SPR)	393.1	377.4	373.0	357.1	383.7	383.9	362.5	355.0	385.0	381.6	371.8	361.2	357.1	355.0	361.2
Pentanes Plus	13.0	17.2	18.4	14.5	13.0	14.8	15.9	14.2	13.9	15.9	16.6	14.9	14.5	14.2	14.9
Liquefied Petroleum Gas (g)	103.3	143.2	172.5	114.0	85.1	149.3	190.1	141.7	109.5	151.3	179.4	139.6	114.0	141.7	139.6
Unfinished Oils	89.9	86.8	81.6	78.0	91.3	87.3	90.1	83.1	91.9	88.8	86.6	81.3	78.0	83.1	81.3
Other HC/Oxygenates	21.6	19.9	20.0	21.6	22.6	23.0	22.7	23.3	25.8	24.4	23.7	24.0	21.6	23.3	24.0
Total Motor Gasoline	224.7	224.4	219.8	228.0	220.9	218.8	211.2	226.8	223.5	214.7	213.1	226.4	228.0	226.8	226.4
Finished Motor Gasoline	47.3	48.6	39.8	39.0	34.3	28.9	32.3	34.3	30.8	31.0	30.6	32.7	39.0	34.3	32.7
Motor Gasoline Blend Comp.	177.3	175.7	180.0	189.1	186.6	190.0	178.9	192.5	192.7	183.7	182.5	193.8	189.1	192.5	193.8
Jet Fuel	39.9	40.4	41.1	37.2	36.0	36.3	35.7	35.4	36.4	38.6	39.7	37.2	37.2	35.4	37.2
Distillate Fuel Oil	118.7	122.5	129.3	127.5	115.3	121.7	123.3	125.7	115.6	119.7	129.0	130.3	127.5	125.7	130.3
Residual Fuel Oil	37.0	37.6	35.6	38.1	36.4	36.7	35.5	36.3	37.1	36.6	35.0	35.6	38.1	36.3	35.6
Other Oils (h)	55.8	53.6	46.1	49.4	52.8	50.9	43.2	44.7	52.9	51.4	43.7	45.2	49.4	44.7	45.2
Total Commercial Inventory	1,097	1,123	1,137	1,065	1,057	1,123	1,130	1,086	1,092	1,123	1,139	1,096	1,065	1,086	1,096
Crude Oil in SPR	696	696	696	696	696	691	691	691	691	691	691	691	696	691	691

- = no data available

(a) Includes lease condensate.

(b) Crude oil production from U.S. Federal leases in the Gulf of Mexico (GOM).

(c) Net imports equals gross imports minus gross exports.

(d) Crude oil adjustment balances supply and consumption and was previously referred to as "Unaccounted for Crude Oil."

(e) Renewables and oxygenate production includes pentanes plus, oxygenates (excluding fuel ethanol), and renewable fuels.

(f) Petroleum products adjustment includes hydrogen/oxygenates/renewables/other hydrocarbons, motor gasoline blend components, and finished motor gasoline.

(g) "Liquefied Petroleum Gas" includes ethane, propane, butanes and refinery olefins.

(h) "Other Oils" includes aviation gasoline blend components, finished aviation gasoline, kerosene, petrochemical feedstocks, special naphthas, lubricants, waxes, petroleum coke, asphalt and road oil, still gas, and miscellaneous products.

**Notes:** The approximate break between historical and forecast values is shown with historical data printed in bold; estimates and forecasts in italics.

SPR: Strategic Petroleum Reserve

HC: Hydrocarbons

**Historical data:** Latest data available from Energy Information Administration databases supporting the following reports: *Petroleum Supply Monthly*, DOE/EIA-0109; *Petroleum Supply Annual*, DOE/EIA-0340/2; and *Weekly Petroleum Status Report*, DOE/EIA-0208.

Minor discrepancies with published historical data are due to independent rounding.

**Projections:** EIA Regional Short-Term Energy Model.

**Table 4b. U.S. Petroleum Refinery Balance (Million Barrels per Day, Except Utilization Factor)**

U.S. Energy Information Administration | Short-Term Energy Outlook - September 2014

	2013				2014				2015				Year		
	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	2013	2014	2015
<b>Refinery and Blender Net Inputs</b>															
Crude Oil .....	<b>14.51</b>	<b>15.33</b>	<b>15.83</b>	<b>15.56</b>	<b>15.18</b>	<b>15.88</b>	<i>16.19</i>	<i>15.57</i>	<i>15.15</i>	<i>15.80</i>	<i>16.17</i>	<i>15.57</i>	<b>15.31</b>	<i>15.71</i>	<i>15.68</i>
Pentanes Plus .....	<b>0.18</b>	<b>0.15</b>	<b>0.17</b>	<b>0.16</b>	<b>0.14</b>	<b>0.15</b>	<i>0.17</i>	<i>0.18</i>	<i>0.16</i>	<i>0.17</i>	<i>0.17</i>	<i>0.18</i>	<b>0.17</b>	<i>0.16</i>	<i>0.17</i>
Liquefied Petroleum Gas (a) .....	<b>0.34</b>	<b>0.26</b>	<b>0.30</b>	<b>0.43</b>	<b>0.37</b>	<b>0.28</b>	<i>0.29</i>	<i>0.40</i>	<i>0.33</i>	<i>0.27</i>	<i>0.30</i>	<i>0.42</i>	<b>0.33</b>	<i>0.33</i>	<i>0.33</i>
Other Hydrocarbons/Oxygenates .....	<b>1.04</b>	<b>1.12</b>	<b>1.15</b>	<b>1.15</b>	<b>1.08</b>	<b>1.16</b>	<i>1.11</i>	<i>1.10</i>	<i>1.09</i>	<i>1.14</i>	<i>1.12</i>	<i>1.12</i>	<b>1.12</b>	<i>1.11</i>	<i>1.12</i>
Unfinished Oils .....	<b>0.47</b>	<b>0.66</b>	<b>0.67</b>	<b>0.40</b>	<b>0.24</b>	<b>0.51</b>	<i>0.53</i>	<i>0.58</i>	<i>0.35</i>	<i>0.61</i>	<i>0.61</i>	<i>0.55</i>	<b>0.55</b>	<i>0.47</i>	<i>0.53</i>
Motor Gasoline Blend Components .....	<b>0.52</b>	<b>0.72</b>	<b>0.46</b>	<b>0.50</b>	<b>0.71</b>	<b>1.06</b>	<i>0.90</i>	<i>0.55</i>	<i>0.69</i>	<i>0.83</i>	<i>0.75</i>	<i>0.56</i>	<b>0.55</b>	<i>0.80</i>	<i>0.71</i>
Aviation Gasoline Blend Components .....	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<i>0.00</i>	<i>0.00</i>	<i>0.00</i>	<i>0.00</i>	<i>0.00</i>	<i>0.00</i>	<b>0.00</b>	<i>0.00</i>	<i>0.00</i>
Total Refinery and Blender Net Inputs .....	<b>17.05</b>	<b>18.24</b>	<b>18.58</b>	<b>18.19</b>	<b>17.73</b>	<b>19.04</b>	<i>19.18</i>	<i>18.37</i>	<i>17.78</i>	<i>18.80</i>	<i>19.12</i>	<i>18.39</i>	<b>18.02</b>	<i>18.58</i>	<i>18.53</i>
<b>Refinery Processing Gain</b> .....	<b>1.01</b>	<b>1.07</b>	<b>1.13</b>	<b>1.13</b>	<b>1.07</b>	<b>1.08</b>	<i>1.11</i>	<i>1.10</i>	<i>1.07</i>	<i>1.08</i>	<i>1.12</i>	<i>1.09</i>	<b>1.09</b>	<i>1.09</i>	<i>1.09</i>
<b>Refinery and Blender Net Production</b>															
Liquefied Petroleum Gas (a) .....	<b>0.51</b>	<b>0.84</b>	<b>0.77</b>	<b>0.37</b>	<b>0.54</b>	<b>0.87</b>	<i>0.75</i>	<i>0.41</i>	<i>0.52</i>	<i>0.84</i>	<i>0.75</i>	<i>0.42</i>	<b>0.62</b>	<i>0.64</i>	<i>0.63</i>
Finished Motor Gasoline .....	<b>8.87</b>	<b>9.27</b>	<b>9.30</b>	<b>9.49</b>	<b>9.26</b>	<b>9.82</b>	<i>9.72</i>	<i>9.47</i>	<i>9.14</i>	<i>9.51</i>	<i>9.59</i>	<i>9.47</i>	<b>9.23</b>	<i>9.57</i>	<i>9.43</i>
Jet Fuel .....	<b>1.43</b>	<b>1.50</b>	<b>1.57</b>	<b>1.50</b>	<b>1.45</b>	<b>1.49</b>	<i>1.64</i>	<i>1.49</i>	<i>1.48</i>	<i>1.55</i>	<i>1.60</i>	<i>1.46</i>	<b>1.50</b>	<i>1.52</i>	<i>1.52</i>
Distillate Fuel .....	<b>4.35</b>	<b>4.66</b>	<b>4.92</b>	<b>4.99</b>	<b>4.66</b>	<b>4.96</b>	<i>5.01</i>	<i>5.09</i>	<i>4.75</i>	<i>4.93</i>	<i>5.14</i>	<i>5.18</i>	<b>4.73</b>	<i>4.93</i>	<i>5.00</i>
Residual Fuel .....	<b>0.49</b>	<b>0.49</b>	<b>0.44</b>	<b>0.45</b>	<b>0.46</b>	<b>0.44</b>	<i>0.44</i>	<i>0.47</i>	<i>0.47</i>	<i>0.45</i>	<i>0.44</i>	<i>0.43</i>	<b>0.47</b>	<i>0.45</i>	<i>0.45</i>
Other Oils (b) .....	<b>2.42</b>	<b>2.55</b>	<b>2.70</b>	<b>2.53</b>	<b>2.43</b>	<b>2.52</b>	<i>2.73</i>	<i>2.54</i>	<i>2.49</i>	<i>2.61</i>	<i>2.72</i>	<i>2.54</i>	<b>2.55</b>	<i>2.56</i>	<i>2.59</i>
Total Refinery and Blender Net Production .....	<b>18.06</b>	<b>19.31</b>	<b>19.71</b>	<b>19.32</b>	<b>18.80</b>	<b>20.11</b>	<i>20.29</i>	<i>19.47</i>	<i>18.85</i>	<i>19.88</i>	<i>20.24</i>	<i>19.48</i>	<b>19.11</b>	<i>19.67</i>	<i>19.62</i>
<b>Refinery Distillation Inputs</b> .....	<b>14.80</b>	<b>15.77</b>	<b>16.31</b>	<b>15.99</b>	<b>15.51</b>	<b>16.17</b>	<i>16.54</i>	<i>15.96</i>	<i>15.48</i>	<i>16.11</i>	<i>16.52</i>	<i>15.95</i>	<b>15.72</b>	<i>16.05</i>	<i>16.02</i>
<b>Refinery Operable Distillation Capacity</b> .....	<b>17.82</b>	<b>17.81</b>	<b>17.82</b>	<b>17.82</b>	<b>17.93</b>	<b>17.89</b>	<i>17.93</i>	<i>17.93</i>	<i>17.93</i>	<i>17.93</i>	<i>17.93</i>	<i>17.93</i>	<b>17.82</b>	<i>17.92</i>	<i>17.93</i>
<b>Refinery Distillation Utilization Factor</b> .....	<b>0.83</b>	<b>0.89</b>	<b>0.92</b>	<b>0.90</b>	<b>0.87</b>	<b>0.90</b>	<i>0.92</i>	<i>0.89</i>	<i>0.86</i>	<i>0.90</i>	<i>0.92</i>	<i>0.89</i>	<b>0.88</b>	<i>0.90</i>	<i>0.89</i>

- = no data available

(a) "Liquefied Petroleum Gas" includes ethane, propane, butanes and refinery olefins.

(b) "Other Oils" includes aviation gasoline blend components, finished aviation gasoline, kerosene, petrochemical feedstocks, special naphthas, lubricants, waxes, petroleum coke, asphalt and road oil, still gas, and miscellaneous products.

**Notes:** The approximate break between historical and forecast values is shown with historical data printed in bold; estimates and forecasts in italics.

**Historical data:** Latest data available from Energy Information Administration databases supporting the following reports: *Petroleum Supply Monthly*, DOE/EIA-0109;

*Petroleum Supply Annual*, DOE/EIA-0340/2; *Weekly Petroleum Status Report*, DOE/EIA-0208.

Minor discrepancies with published historical data are due to independent rounding.

**Projections:** EIA Regional Short-Term Energy Model.



**Table 4c. U.S. Regional Motor Gasoline Prices and Inventories**

U.S. Energy Information Administration | Short-Term Energy Outlook - September 2014

	2013				2014				2015				Year		
	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	2013	2014	2015
<b>Prices (cents per gallon)</b>															
<b>Refiner Wholesale Price .....</b>	<b>289</b>	<b>290</b>	<b>288</b>	<b>259</b>	<b>272</b>	<b>298</b>	<i>275</i>	<i>256</i>	<i>265</i>	<i>285</i>	<i>279</i>	<i>259</i>	<b>281</b>	<i>275</i>	<i>272</i>
<b>Gasoline Regular Grade Retail Prices Including Taxes</b>															
PADD 1 .....	<b>362</b>	<b>350</b>	<b>355</b>	<b>334</b>	<b>344</b>	<b>365</b>	<i>348</i>	<i>326</i>	<i>332</i>	<i>349</i>	<i>344</i>	<i>330</i>	<b>350</b>	<i>346</i>	<i>339</i>
PADD 2 .....	<b>350</b>	<b>368</b>	<b>352</b>	<b>319</b>	<b>337</b>	<b>365</b>	<i>343</i>	<i>318</i>	<i>326</i>	<i>352</i>	<i>347</i>	<i>321</i>	<b>347</b>	<i>341</i>	<i>337</i>
PADD 3 .....	<b>338</b>	<b>336</b>	<b>337</b>	<b>308</b>	<b>318</b>	<b>345</b>	<i>329</i>	<i>304</i>	<i>314</i>	<i>337</i>	<i>328</i>	<i>306</i>	<b>329</b>	<i>324</i>	<i>321</i>
PADD 4 .....	<b>323</b>	<b>361</b>	<b>362</b>	<b>325</b>	<b>326</b>	<b>350</b>	<i>361</i>	<i>324</i>	<i>315</i>	<i>348</i>	<i>349</i>	<i>326</i>	<b>343</b>	<i>341</i>	<i>335</i>
PADD 5 .....	<b>382</b>	<b>390</b>	<b>385</b>	<b>355</b>	<b>362</b>	<b>401</b>	<i>387</i>	<i>356</i>	<i>357</i>	<i>383</i>	<i>381</i>	<i>360</i>	<b>378</b>	<i>377</i>	<i>371</i>
U.S. Average .....	<b>357</b>	<b>360</b>	<b>357</b>	<b>329</b>	<b>340</b>	<b>368</b>	<i>350</i>	<i>325</i>	<i>331</i>	<i>354</i>	<i>349</i>	<i>328</i>	<b>351</b>	<i>346</i>	<i>341</i>
<b>Gasoline All Grades Including Taxes</b>	<b>363</b>	<b>367</b>	<b>364</b>	<b>337</b>	<b>348</b>	<b>375</b>	<i>358</i>	<i>333</i>	<i>339</i>	<i>362</i>	<i>357</i>	<i>337</i>	<b>358</b>	<i>354</i>	<i>349</i>
<b>End-of-period Inventories (million barrels)</b>															
<b>Total Gasoline Inventories</b>															
PADD 1 .....	<b>59.5</b>	<b>62.0</b>	<b>58.1</b>	<b>61.1</b>	<b>57.7</b>	<b>63.1</b>	<i>55.1</i>	<i>58.9</i>	<i>58.0</i>	<i>57.4</i>	<i>56.2</i>	<i>59.5</i>	<b>61.1</b>	<i>58.9</i>	<i>59.5</i>
PADD 2 .....	<b>53.8</b>	<b>49.3</b>	<b>49.8</b>	<b>51.5</b>	<b>49.0</b>	<b>49.7</b>	<i>48.5</i>	<i>50.5</i>	<i>52.0</i>	<i>48.1</i>	<i>49.0</i>	<i>50.1</i>	<b>51.5</b>	<i>50.5</i>	<i>50.1</i>
PADD 3 .....	<b>75.6</b>	<b>77.5</b>	<b>77.3</b>	<b>76.3</b>	<b>77.7</b>	<b>72.8</b>	<i>73.8</i>	<i>78.0</i>	<i>75.9</i>	<i>74.4</i>	<i>73.6</i>	<i>78.3</i>	<b>76.3</b>	<i>78.0</i>	<i>78.3</i>
PADD 4 .....	<b>6.8</b>	<b>6.5</b>	<b>6.3</b>	<b>7.1</b>	<b>6.5</b>	<b>6.1</b>	<i>6.8</i>	<i>7.1</i>	<i>6.7</i>	<i>6.6</i>	<i>6.8</i>	<i>7.2</i>	<b>7.1</b>	<i>7.1</i>	<i>7.2</i>
PADD 5 .....	<b>29.1</b>	<b>29.1</b>	<b>28.2</b>	<b>32.1</b>	<b>30.0</b>	<b>27.1</b>	<i>26.9</i>	<i>32.2</i>	<i>30.9</i>	<i>28.1</i>	<i>27.6</i>	<i>31.3</i>	<b>32.1</b>	<i>32.2</i>	<i>31.3</i>
U.S. Total .....	<b>224.7</b>	<b>224.4</b>	<b>219.8</b>	<b>228.0</b>	<b>220.9</b>	<b>218.8</b>	<i>211.2</i>	<i>226.8</i>	<i>223.5</i>	<i>214.7</i>	<i>213.1</i>	<i>226.4</i>	<b>228.0</b>	<i>226.8</i>	<i>226.4</i>
<b>Finished Gasoline Inventories</b>															
U.S. Total .....	<b>47.3</b>	<b>48.6</b>	<b>39.8</b>	<b>39.0</b>	<b>34.3</b>	<b>28.9</b>	<i>32.3</i>	<i>34.3</i>	<i>30.8</i>	<i>31.0</i>	<i>30.6</i>	<i>32.7</i>	<b>39.0</b>	<i>34.3</i>	<i>32.7</i>
<b>Gasoline Blending Components Inventories</b>															
U.S. Total .....	<b>177.3</b>	<b>175.7</b>	<b>180.0</b>	<b>189.1</b>	<b>186.6</b>	<b>190.0</b>	<i>178.9</i>	<i>192.5</i>	<i>192.7</i>	<i>183.7</i>	<i>182.5</i>	<i>193.8</i>	<b>189.1</b>	<i>192.5</i>	<i>193.8</i>

- = no data available

Prices are not adjusted for inflation.

**Notes:** The approximate break between historical and forecast values is shown with historical data printed in bold; estimates and forecasts in italics.

Regions refer to Petroleum Administration for Defense Districts (PADD).

 See "Petroleum for Administration Defense District" in EIA's Energy Glossary (<http://www.eia.doe.gov/glossary/index.html>) for a list of States in each region.

**Historical data :** Latest data available from Energy Information Administration databases supporting the following reports: *Petroleum Marketing Monthly* , DOE/EIA-0380; *Petroleum Supply Monthly* , DOE/EIA-0109; *Petroleum Supply Annual* , DOE/EIA-0340/2; and *Weekly Petroleum Status Report* , DOE/EIA-0208.

Minor discrepancies with published historical data are due to independent rounding.

**Projections:** EIA Regional Short-Term Energy Model.

**Table 5a. U.S. Natural Gas Supply, Consumption, and Inventories**

U.S. Energy Information Administration | Short-Term Energy Outlook - September 2014

	2013				2014				2015				Year		
	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	2013	2014	2015
<b>Supply (billion cubic feet per day)</b>															
Total Marketed Production .....	<b>68.95</b>	<b>69.77</b>	<b>70.52</b>	<b>71.46</b>	<b>72.14</b>	<b>73.96</b>	<i>74.50</i>	<i>75.10</i>	<i>75.53</i>	<i>75.47</i>	<i>75.31</i>	<i>75.58</i>	<b>70.18</b>	<i>73.93</i>	<i>75.47</i>
Alaska .....	<b>1.04</b>	<b>0.91</b>	<b>0.79</b>	<b>0.96</b>	<b>0.99</b>	<b>0.93</b>	<i>0.84</i>	<i>0.97</i>	<i>1.00</i>	<i>0.84</i>	<i>0.76</i>	<i>0.92</i>	<b>0.93</b>	<i>0.93</i>	<i>0.88</i>
Federal GOM (a) .....	<b>3.93</b>	<b>3.64</b>	<b>3.44</b>	<b>3.36</b>	<b>3.29</b>	<b>3.42</b>	<i>3.09</i>	<i>3.06</i>	<i>3.11</i>	<i>3.10</i>	<i>2.91</i>	<i>2.92</i>	<b>3.59</b>	<i>3.21</i>	<i>3.01</i>
Lower 48 States (excl GOM) ....	<b>63.97</b>	<b>65.21</b>	<b>66.28</b>	<b>67.14</b>	<b>67.86</b>	<b>69.62</b>	<i>70.57</i>	<i>71.08</i>	<i>71.42</i>	<i>71.53</i>	<i>71.63</i>	<i>71.74</i>	<b>65.66</b>	<i>69.79</i>	<i>71.58</i>
Total Dry Gas Production .....	<b>65.46</b>	<b>66.21</b>	<b>66.76</b>	<b>67.64</b>	<b>68.23</b>	<b>69.73</b>	<i>70.24</i>	<i>70.80</i>	<i>71.21</i>	<i>71.15</i>	<i>71.00</i>	<i>71.25</i>	<b>66.53</b>	<i>69.76</i>	<i>71.15</i>
LNG Net Imports .....	<b>0.37</b>	<b>0.21</b>	<b>0.37</b>	<b>0.12</b>	<b>0.17</b>	<b>0.17</b>	<i>0.20</i>	<i>0.19</i>	<i>0.17</i>	<i>0.17</i>	<i>-0.24</i>	<i>-0.42</i>	<b>0.27</b>	<i>0.18</i>	<i>-0.08</i>
Pipeline Gross Imports .....	<b>8.11</b>	<b>7.39</b>	<b>7.42</b>	<b>7.62</b>	<b>8.44</b>	<b>6.52</b>	<i>7.77</i>	<i>7.17</i>	<i>7.77</i>	<i>6.87</i>	<i>7.39</i>	<i>7.41</i>	<b>7.63</b>	<i>7.47</i>	<i>7.36</i>
Pipeline Gross Exports .....	<b>4.84</b>	<b>4.41</b>	<b>4.15</b>	<b>3.84</b>	<b>4.70</b>	<b>3.91</b>	<i>4.22</i>	<i>4.54</i>	<i>4.62</i>	<i>4.74</i>	<i>4.61</i>	<i>4.89</i>	<b>4.31</b>	<i>4.34</i>	<i>4.71</i>
Supplemental Gaseous Fuels .....	<b>0.19</b>	<b>0.14</b>	<b>0.14</b>	<b>0.15</b>	<b>0.17</b>	<b>0.16</b>	<i>0.17</i>	<i>0.19</i>	<i>0.19</i>	<i>0.16</i>	<i>0.17</i>	<i>0.19</i>	<b>0.16</b>	<i>0.17</i>	<i>0.18</i>
Net Inventory Withdrawals .....	<b>18.71</b>	<b>-10.17</b>	<b>-9.80</b>	<b>7.32</b>	<b>22.75</b>	<b>-12.71</b>	<i>-12.06</i>	<i>2.38</i>	<i>15.85</i>	<i>-11.21</i>	<i>-9.97</i>	<i>3.13</i>	<b>1.45</b>	<i>0.00</i>	<i>-0.61</i>
Total Supply .....	<b>88.00</b>	<b>59.37</b>	<b>60.75</b>	<b>79.01</b>	<b>95.06</b>	<b>59.96</b>	<i>62.10</i>	<i>76.19</i>	<i>90.56</i>	<i>62.40</i>	<i>63.73</i>	<i>76.66</i>	<b>71.73</b>	<i>73.25</i>	<i>73.28</i>
Balancing Item (b) .....	<b>0.20</b>	<b>0.29</b>	<b>0.01</b>	<b>-2.05</b>	<b>-0.33</b>	<b>0.48</b>	<i>-1.29</i>	<i>-1.35</i>	<i>-0.96</i>	<i>-0.23</i>	<i>-0.24</i>	<i>-0.54</i>	<b>-0.39</b>	<i>-0.63</i>	<i>-0.49</i>
Total Primary Supply .....	<b>88.20</b>	<b>59.66</b>	<b>60.76</b>	<b>76.96</b>	<b>94.74</b>	<b>60.45</b>	<i>60.81</i>	<i>74.84</i>	<i>89.61</i>	<i>62.17</i>	<i>63.49</i>	<i>76.12</i>	<b>71.34</b>	<i>72.62</i>	<i>72.79</i>
<b>Consumption (billion cubic feet per day)</b>															
Residential .....	<b>25.61</b>	<b>7.60</b>	<b>3.71</b>	<b>17.43</b>	<b>28.83</b>	<b>7.37</b>	<i>3.60</i>	<i>15.92</i>	<i>24.99</i>	<i>7.18</i>	<i>3.64</i>	<i>15.82</i>	<b>13.54</b>	<i>13.87</i>	<i>12.86</i>
Commercial .....	<b>14.44</b>	<b>6.06</b>	<b>4.51</b>	<b>11.16</b>	<b>16.45</b>	<b>6.15</b>	<i>4.64</i>	<i>10.36</i>	<i>14.09</i>	<i>5.99</i>	<i>4.60</i>	<i>10.32</i>	<b>9.02</b>	<i>9.37</i>	<i>8.73</i>
Industrial .....	<b>21.79</b>	<b>19.39</b>	<b>19.07</b>	<b>21.53</b>	<b>22.98</b>	<b>19.99</b>	<i>19.77</i>	<i>22.36</i>	<i>23.75</i>	<i>20.98</i>	<i>20.76</i>	<i>23.09</i>	<b>20.44</b>	<i>21.27</i>	<i>22.14</i>
Electric Power (c) .....	<b>19.94</b>	<b>20.97</b>	<b>27.76</b>	<b>20.61</b>	<b>19.70</b>	<b>21.04</b>	<i>26.82</i>	<i>19.91</i>	<i>19.99</i>	<i>21.94</i>	<i>28.46</i>	<i>20.58</i>	<b>22.34</b>	<i>21.88</i>	<i>22.76</i>
Lease and Plant Fuel .....	<b>3.80</b>	<b>3.85</b>	<b>3.89</b>	<b>3.94</b>	<b>3.98</b>	<b>4.08</b>	<i>4.11</i>	<i>4.14</i>	<i>4.17</i>	<i>4.16</i>	<i>4.15</i>	<i>4.17</i>	<b>3.87</b>	<i>4.08</i>	<i>4.16</i>
Pipeline and Distribution Use .....	<b>2.52</b>	<b>1.70</b>	<b>1.73</b>	<b>2.19</b>	<b>2.70</b>	<b>1.72</b>	<i>1.77</i>	<i>2.06</i>	<i>2.53</i>	<i>1.82</i>	<i>1.80</i>	<i>2.06</i>	<b>2.03</b>	<i>2.06</i>	<i>2.05</i>
Vehicle Use .....	<b>0.09</b>	<b>0.09</b>	<b>0.09</b>	<b>0.09</b>	<b>0.09</b>	<b>0.09</b>	<i>0.09</i>	<i>0.09</i>	<i>0.09</i>	<i>0.09</i>	<i>0.09</i>	<i>0.09</i>	<b>0.09</b>	<i>0.09</i>	<i>0.09</i>
Total Consumption .....	<b>88.20</b>	<b>59.66</b>	<b>60.76</b>	<b>76.96</b>	<b>94.74</b>	<b>60.45</b>	<i>60.81</i>	<i>74.84</i>	<i>89.61</i>	<i>62.17</i>	<i>63.49</i>	<i>76.12</i>	<b>71.34</b>	<i>72.62</i>	<i>72.79</i>
<b>End-of-period Inventories (billion cubic feet)</b>															
Working Gas Inventory .....	<b>1,723</b>	<b>2,642</b>	<b>3,565</b>	<b>2,890</b>	<b>857</b>	<b>2,006</b>	<i>3,116</i>	<i>2,897</i>	<i>1,471</i>	<i>2,491</i>	<i>3,409</i>	<i>3,120</i>	<b>2,890</b>	<i>2,897</i>	<i>3,120</i>
Producing Region (d) .....	<b>705</b>	<b>973</b>	<b>1,174</b>	<b>1,022</b>	<b>358</b>	<b>692</b>	<i>933</i>	<i>928</i>	<i>602</i>	<i>910</i>	<i>1,081</i>	<i>1,062</i>	<b>1,022</b>	<i>928</i>	<i>1,062</i>
East Consuming Region (d) .....	<b>660</b>	<b>1,208</b>	<b>1,833</b>	<b>1,444</b>	<b>316</b>	<b>952</b>	<i>1,711</i>	<i>1,500</i>	<i>549</i>	<i>1,114</i>	<i>1,758</i>	<i>1,530</i>	<b>1,444</b>	<i>1,500</i>	<i>1,530</i>
West Consuming Region (d) ....	<b>358</b>	<b>461</b>	<b>558</b>	<b>423</b>	<b>184</b>	<b>362</b>	<i>472</i>	<i>469</i>	<i>320</i>	<i>467</i>	<i>569</i>	<i>528</i>	<b>423</b>	<i>469</i>	<i>528</i>

- = no data available

(a) Marketed production from U.S. Federal leases in the Gulf of Mexico.

(b) The balancing item represents the difference between the sum of the components of natural gas supply and the sum of components of natural gas demand.

(c) Natural gas used for electricity generation and (a limited amount of) useful thermal output by electric utilities and independent power producers.

 (d) For a list of States in each inventory region refer to *Methodology for EIA Weekly Underground Natural Gas Storage Estimates* (<http://tonto.eia.doe.gov/oog/info/ngs/methodology.html>).

**Notes:** The approximate break between historical and forecast values is shown with historical data printed in bold; estimates and forecasts in italics.

LNG: liquefied natural gas.

**Historical data:** Latest data available from Energy Information Administration databases supporting the following reports: *Natural Gas Monthly*, DOE/EIA-0130; and *Electric Power Monthly*, DOE/EIA-0226.

Minor discrepancies with published historical data are due to independent rounding.

**Projections:** EIA Regional Short-Term Energy Model.

**Table 5b. U.S. Regional Natural Gas Prices (dollars per thousand cubic feet)**  
U.S. Energy Information Administration | Short-Term Energy Outlook - September 2014

	2013				2014				2015				Year		
	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	2013	2014	2015
<b>Wholesale/Spot</b>															
Henry Hub Spot Price .....	<b>3.59</b>	<b>4.13</b>	<b>3.66</b>	<b>3.97</b>	<b>5.36</b>	<b>4.75</b>	<i>4.08</i>	<i>4.17</i>	<i>4.19</i>	<i>3.78</i>	<i>3.91</i>	<i>4.07</i>	<b>3.84</b>	<i>4.59</i>	<i>3.99</i>
<b>Residential</b>															
New England .....	<b>13.07</b>	<b>13.63</b>	<b>16.89</b>	<b>13.75</b>	<b>13.94</b>	<b>16.56</b>	<i>18.10</i>	<i>14.34</i>	<i>13.67</i>	<i>14.81</i>	<i>17.40</i>	<i>14.23</i>	<b>13.66</b>	<i>14.75</i>	<i>14.30</i>
Middle Atlantic .....	<b>11.00</b>	<b>13.34</b>	<b>17.79</b>	<b>11.37</b>	<b>10.71</b>	<b>13.38</b>	<i>18.15</i>	<i>12.80</i>	<i>11.50</i>	<i>13.97</i>	<i>18.27</i>	<i>12.90</i>	<b>11.90</b>	<i>12.08</i>	<i>12.70</i>
E. N. Central .....	<b>7.74</b>	<b>10.76</b>	<b>15.76</b>	<b>8.13</b>	<b>8.65</b>	<b>12.94</b>	<i>17.65</i>	<i>9.82</i>	<i>8.77</i>	<i>11.68</i>	<i>17.14</i>	<i>9.80</i>	<b>8.71</b>	<i>9.97</i>	<i>9.96</i>
W. N. Central .....	<b>8.10</b>	<b>10.46</b>	<b>17.53</b>	<b>9.13</b>	<b>9.03</b>	<b>11.74</b>	<i>17.98</i>	<i>9.87</i>	<i>9.07</i>	<i>11.19</i>	<i>17.44</i>	<i>9.84</i>	<b>9.27</b>	<i>10.06</i>	<i>10.07</i>
S. Atlantic .....	<b>11.10</b>	<b>15.40</b>	<b>22.32</b>	<b>12.72</b>	<b>11.31</b>	<b>16.36</b>	<i>23.18</i>	<i>13.53</i>	<i>12.33</i>	<i>17.25</i>	<i>22.94</i>	<i>13.53</i>	<b>12.87</b>	<i>13.18</i>	<i>13.98</i>
E. S. Central .....	<b>9.18</b>	<b>12.48</b>	<b>18.31</b>	<b>10.54</b>	<b>9.59</b>	<b>14.02</b>	<i>19.26</i>	<i>11.74</i>	<i>10.53</i>	<i>14.11</i>	<i>18.93</i>	<i>11.93</i>	<b>10.52</b>	<i>11.07</i>	<i>11.83</i>
W. S. Central .....	<b>8.36</b>	<b>12.12</b>	<b>19.77</b>	<b>10.36</b>	<b>8.51</b>	<b>14.28</b>	<i>19.35</i>	<i>11.36</i>	<i>8.63</i>	<i>13.73</i>	<i>19.38</i>	<i>11.51</i>	<b>10.40</b>	<i>10.74</i>	<i>10.88</i>
Mountain .....	<b>8.01</b>	<b>9.81</b>	<b>13.78</b>	<b>8.76</b>	<b>9.06</b>	<b>11.23</b>	<i>14.37</i>	<i>9.54</i>	<i>9.01</i>	<i>9.73</i>	<i>13.45</i>	<i>9.45</i>	<b>8.92</b>	<i>9.93</i>	<i>9.59</i>
Pacific .....	<b>9.47</b>	<b>10.81</b>	<b>11.27</b>	<b>10.20</b>	<b>10.92</b>	<b>11.60</b>	<i>11.73</i>	<i>10.31</i>	<i>9.98</i>	<i>10.34</i>	<i>11.37</i>	<i>10.31</i>	<b>10.13</b>	<i>10.94</i>	<i>10.32</i>
U.S. Average .....	<b>9.24</b>	<b>11.88</b>	<b>16.13</b>	<b>9.93</b>	<b>9.81</b>	<b>13.17</b>	<i>16.88</i>	<i>11.08</i>	<i>10.06</i>	<i>12.48</i>	<i>16.55</i>	<i>11.08</i>	<b>10.31</b>	<i>11.09</i>	<i>11.18</i>
<b>Commercial</b>															
New England .....	<b>10.87</b>	<b>10.45</b>	<b>9.70</b>	<b>9.89</b>	<b>11.38</b>	<b>12.58</b>	<i>11.50</i>	<i>11.11</i>	<i>11.63</i>	<i>11.09</i>	<i>11.00</i>	<i>11.10</i>	<b>10.37</b>	<i>11.51</i>	<i>11.33</i>
Middle Atlantic .....	<b>8.82</b>	<b>8.66</b>	<b>7.95</b>	<b>8.28</b>	<b>9.40</b>	<b>9.05</b>	<i>8.87</i>	<i>9.66</i>	<i>9.99</i>	<i>9.31</i>	<i>8.92</i>	<i>9.73</i>	<b>8.53</b>	<i>9.33</i>	<i>9.66</i>
E. N. Central .....	<b>7.01</b>	<b>8.25</b>	<b>8.89</b>	<b>7.04</b>	<b>8.01</b>	<b>9.92</b>	<i>10.29</i>	<i>8.21</i>	<i>8.24</i>	<i>9.16</i>	<i>9.74</i>	<i>8.20</i>	<b>7.33</b>	<i>8.48</i>	<i>8.47</i>
W. N. Central .....	<b>7.00</b>	<b>7.79</b>	<b>9.25</b>	<b>7.37</b>	<b>8.30</b>	<b>9.12</b>	<i>9.86</i>	<i>8.08</i>	<i>8.08</i>	<i>8.02</i>	<i>9.01</i>	<i>7.98</i>	<b>7.40</b>	<i>8.47</i>	<i>8.12</i>
S. Atlantic .....	<b>8.76</b>	<b>10.02</b>	<b>10.51</b>	<b>9.35</b>	<b>9.22</b>	<b>10.57</b>	<i>11.28</i>	<i>10.27</i>	<i>10.25</i>	<i>10.50</i>	<i>10.98</i>	<i>10.15</i>	<b>9.37</b>	<i>9.97</i>	<i>10.35</i>
E. S. Central .....	<b>8.15</b>	<b>9.53</b>	<b>10.30</b>	<b>9.00</b>	<b>8.90</b>	<b>10.71</b>	<i>11.05</i>	<i>9.75</i>	<i>9.65</i>	<i>10.23</i>	<i>10.58</i>	<i>9.77</i>	<b>8.86</b>	<i>9.61</i>	<i>9.87</i>
W. S. Central .....	<b>6.84</b>	<b>8.05</b>	<b>8.70</b>	<b>7.52</b>	<b>7.48</b>	<b>9.25</b>	<i>8.85</i>	<i>8.13</i>	<i>7.80</i>	<i>8.09</i>	<i>8.68</i>	<i>8.18</i>	<b>7.53</b>	<i>8.14</i>	<i>8.08</i>
Mountain .....	<b>6.93</b>	<b>7.54</b>	<b>8.55</b>	<b>7.48</b>	<b>7.77</b>	<b>8.68</b>	<i>9.40</i>	<i>8.16</i>	<i>7.92</i>	<i>7.69</i>	<i>9.05</i>	<i>8.27</i>	<b>7.36</b>	<i>8.22</i>	<i>8.10</i>
Pacific .....	<b>8.11</b>	<b>8.74</b>	<b>8.84</b>	<b>8.56</b>	<b>9.22</b>	<b>9.18</b>	<i>9.25</i>	<i>9.13</i>	<i>9.09</i>	<i>8.58</i>	<i>9.35</i>	<i>9.23</i>	<b>8.48</b>	<i>9.19</i>	<i>9.08</i>
U.S. Average .....	<b>7.83</b>	<b>8.59</b>	<b>8.95</b>	<b>7.98</b>	<b>8.66</b>	<b>9.59</b>	<i>9.77</i>	<i>8.95</i>	<i>9.01</i>	<i>9.03</i>	<i>9.52</i>	<i>8.96</i>	<b>8.12</b>	<i>9.00</i>	<i>9.05</i>
<b>Industrial</b>															
New England .....	<b>8.68</b>	<b>8.49</b>	<b>7.38</b>	<b>8.87</b>	<b>10.05</b>	<b>9.50</b>	<i>8.64</i>	<i>9.58</i>	<i>9.75</i>	<i>8.83</i>	<i>8.66</i>	<i>9.71</i>	<b>8.47</b>	<i>9.60</i>	<i>9.37</i>
Middle Atlantic .....	<b>8.17</b>	<b>8.13</b>	<b>8.21</b>	<b>8.12</b>	<b>9.22</b>	<b>8.77</b>	<i>8.55</i>	<i>8.83</i>	<i>8.98</i>	<i>8.07</i>	<i>8.33</i>	<i>8.92</i>	<b>8.16</b>	<i>8.97</i>	<i>8.72</i>
E. N. Central .....	<b>6.11</b>	<b>6.58</b>	<b>6.04</b>	<b>5.91</b>	<b>7.88</b>	<b>8.72</b>	<i>7.13</i>	<i>6.93</i>	<i>7.25</i>	<i>6.63</i>	<i>6.67</i>	<i>6.86</i>	<b>6.12</b>	<i>7.67</i>	<i>6.97</i>
W. N. Central .....	<b>5.16</b>	<b>5.40</b>	<b>4.92</b>	<b>5.40</b>	<b>7.29</b>	<b>6.25</b>	<i>5.64</i>	<i>5.69</i>	<i>5.92</i>	<i>5.08</i>	<i>5.35</i>	<i>6.01</i>	<b>5.23</b>	<i>6.27</i>	<i>5.63</i>
S. Atlantic .....	<b>5.39</b>	<b>5.81</b>	<b>5.32</b>	<b>5.52</b>	<b>6.94</b>	<b>6.45</b>	<i>6.13</i>	<i>6.27</i>	<i>6.34</i>	<i>5.74</i>	<i>5.89</i>	<i>6.15</i>	<b>5.51</b>	<i>6.46</i>	<i>6.05</i>
E. S. Central .....	<b>5.25</b>	<b>5.57</b>	<b>5.14</b>	<b>5.45</b>	<b>6.50</b>	<b>6.27</b>	<i>5.73</i>	<i>5.69</i>	<i>5.85</i>	<i>5.36</i>	<i>5.59</i>	<i>5.74</i>	<b>5.35</b>	<i>6.07</i>	<i>5.65</i>
W. S. Central .....	<b>3.61</b>	<b>4.38</b>	<b>3.84</b>	<b>3.92</b>	<b>5.13</b>	<b>4.91</b>	<i>4.31</i>	<i>4.18</i>	<i>4.26</i>	<i>3.91</i>	<i>4.12</i>	<i>4.20</i>	<b>3.94</b>	<i>4.62</i>	<i>4.13</i>
Mountain .....	<b>5.60</b>	<b>5.96</b>	<b>6.13</b>	<b>5.99</b>	<b>6.63</b>	<b>6.84</b>	<i>6.66</i>	<i>6.61</i>	<i>6.27</i>	<i>5.91</i>	<i>6.40</i>	<i>6.57</i>	<b>5.88</b>	<i>6.67</i>	<i>6.31</i>
Pacific .....	<b>6.69</b>	<b>7.11</b>	<b>6.92</b>	<b>6.80</b>	<b>7.81</b>	<b>7.60</b>	<i>7.32</i>	<i>7.24</i>	<i>7.15</i>	<i>6.59</i>	<i>7.03</i>	<i>7.28</i>	<b>6.86</b>	<i>7.49</i>	<i>7.04</i>
U.S. Average .....	<b>4.57</b>	<b>4.98</b>	<b>4.41</b>	<b>4.69</b>	<b>6.16</b>	<b>5.60</b>	<i>4.95</i>	<i>5.07</i>	<i>5.31</i>	<i>4.60</i>	<i>4.75</i>	<i>5.09</i>	<b>4.66</b>	<i>5.46</i>	<i>4.96</i>

- = no data available

Prices are not adjusted for inflation.

**Notes:** The approximate break between historical and forecast values is shown with historical data printed in bold; estimates and forecasts in italics.

Regions refer to U.S. Census divisions.

See "Census division" in EIA's Energy Glossary (<http://www.eia.doe.gov/glossary/index.html>) for a list of States in each region.

**Historical data:** Latest data available from Energy Information Administration databases supporting the *Natural Gas Monthly*, DOE/EIA-0130.

Natural gas Henry Hub spot price from Reuter's News Service (<http://www.reuters.com>).

Minor discrepancies with published historical data are due to independent rounding.

**Projections:** EIA Regional Short-Term Energy Model.

**Table 6. U.S. Coal Supply, Consumption, and Inventories**

U.S. Energy Information Administration | Short-Term Energy Outlook - September 2014

	2013				2014				2015				Year		
	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	2013	2014	2015
<b>Supply (million short tons)</b>															
Production .....	<b>245.1</b>	<b>243.1</b>	<b>256.7</b>	<b>239.1</b>	<b>242.3</b>	<b>244.9</b>	<i>254.7</i>	<i>255.8</i>	<i>254.9</i>	<i>240.5</i>	<i>256.3</i>	<i>250.7</i>	<b>984.0</b>	<i>997.7</i>	<i>1002.4</i>
Appalachia .....	<b>70.4</b>	<b>71.3</b>	<b>66.2</b>	<b>63.8</b>	<b>66.6</b>	<b>70.9</b>	<i>70.0</i>	<i>71.3</i>	<i>73.8</i>	<i>70.6</i>	<i>66.2</i>	<i>66.0</i>	<b>271.6</b>	<i>278.8</i>	<i>276.7</i>
Interior .....	<b>45.5</b>	<b>45.0</b>	<b>48.1</b>	<b>44.0</b>	<b>46.3</b>	<b>46.8</b>	<i>49.5</i>	<i>47.5</i>	<i>45.9</i>	<i>45.8</i>	<i>48.5</i>	<i>47.8</i>	<b>182.7</b>	<i>190.1</i>	<i>188.0</i>
Western .....	<b>129.2</b>	<b>126.8</b>	<b>142.4</b>	<b>131.3</b>	<b>129.3</b>	<b>127.2</b>	<i>135.2</i>	<i>137.0</i>	<i>135.2</i>	<i>124.2</i>	<i>141.6</i>	<i>136.8</i>	<b>529.7</b>	<i>528.8</i>	<i>537.8</i>
Primary Inventory Withdrawals .....	<b>5.5</b>	<b>-1.1</b>	<b>1.6</b>	<b>-2.6</b>	<b>1.0</b>	<b>-0.1</b>	<i>0.6</i>	<i>-2.3</i>	<i>0.5</i>	<i>-0.1</i>	<i>0.6</i>	<i>-2.3</i>	<b>3.5</b>	<i>-0.8</i>	<i>-1.3</i>
Imports .....	<b>1.4</b>	<b>2.8</b>	<b>2.4</b>	<b>2.3</b>	<b>2.4</b>	<b>3.5</b>	<i>3.8</i>	<i>3.0</i>	<i>2.2</i>	<i>2.4</i>	<i>3.3</i>	<i>2.9</i>	<b>8.9</b>	<i>12.8</i>	<i>10.8</i>
Exports .....	<b>31.8</b>	<b>29.4</b>	<b>28.6</b>	<b>27.8</b>	<b>27.7</b>	<b>23.0</b>	<i>22.6</i>	<i>23.0</i>	<i>22.3</i>	<i>26.5</i>	<i>24.6</i>	<i>26.0</i>	<b>117.7</b>	<i>96.3</i>	<i>99.5</i>
Metallurgical Coal .....	<b>18.2</b>	<b>16.1</b>	<b>15.9</b>	<b>15.4</b>	<b>16.9</b>	<b>14.7</b>	<i>14.7</i>	<i>14.8</i>	<i>14.5</i>	<i>15.1</i>	<i>13.4</i>	<i>14.5</i>	<b>65.7</b>	<i>61.1</i>	<i>57.4</i>
Steam Coal .....	<b>13.7</b>	<b>13.3</b>	<b>12.7</b>	<b>12.4</b>	<b>10.9</b>	<b>8.3</b>	<i>7.8</i>	<i>8.3</i>	<i>7.8</i>	<i>11.5</i>	<i>11.3</i>	<i>11.6</i>	<b>52.0</b>	<i>35.2</i>	<i>42.1</i>
Total Primary Supply .....	<b>220.1</b>	<b>215.4</b>	<b>232.1</b>	<b>211.1</b>	<b>218.0</b>	<b>225.4</b>	<i>236.6</i>	<i>233.4</i>	<i>235.3</i>	<i>216.3</i>	<i>235.6</i>	<i>225.2</i>	<b>878.7</b>	<i>913.4</i>	<i>912.5</i>
Secondary Inventory Withdrawals .....	<b>14.5</b>	<b>0.7</b>	<b>17.9</b>	<b>4.8</b>	<b>31.1</b>	<b>-15.7</b>	<i>8.0</i>	<i>-7.7</i>	<i>-1.7</i>	<i>-8.9</i>	<i>13.1</i>	<i>-5.7</i>	<b>37.9</b>	<i>15.6</i>	<i>-3.2</i>
Waste Coal (a) .....	<b>2.9</b>	<b>2.6</b>	<b>2.5</b>	<b>2.3</b>	<b>3.2</b>	<b>2.5</b>	<i>3.2</i>	<i>3.0</i>	<i>2.8</i>	<i>2.5</i>	<i>3.2</i>	<i>3.0</i>	<b>10.2</b>	<i>11.8</i>	<i>11.3</i>
Total Supply .....	<b>237.5</b>	<b>218.6</b>	<b>252.5</b>	<b>218.2</b>	<b>252.3</b>	<b>212.2</b>	<i>247.8</i>	<i>228.7</i>	<i>236.4</i>	<i>209.9</i>	<i>251.8</i>	<i>222.5</i>	<b>926.8</b>	<i>940.9</i>	<i>920.6</i>
<b>Consumption (million short tons)</b>															
Coke Plants .....	<b>5.3</b>	<b>5.5</b>	<b>5.4</b>	<b>5.3</b>	<b>4.8</b>	<b>4.8</b>	<i>5.5</i>	<i>5.4</i>	<i>4.7</i>	<i>4.8</i>	<i>5.6</i>	<i>5.6</i>	<b>21.5</b>	<i>20.5</i>	<i>20.7</i>
Electric Power Sector (b) .....	<b>212.0</b>	<b>200.2</b>	<b>237.3</b>	<b>208.9</b>	<b>231.7</b>	<b>196.8</b>	<i>237.1</i>	<i>211.6</i>	<i>219.5</i>	<i>193.8</i>	<i>234.8</i>	<i>204.7</i>	<b>858.4</b>	<i>877.3</i>	<i>852.9</i>
Retail and Other Industry .....	<b>11.8</b>	<b>10.8</b>	<b>10.8</b>	<b>11.9</b>	<b>12.0</b>	<b>10.7</b>	<i>11.0</i>	<i>11.6</i>	<i>11.6</i>	<i>10.8</i>	<i>10.9</i>	<i>11.6</i>	<b>45.3</b>	<i>45.4</i>	<i>44.8</i>
Residential and Commercial .....	<b>0.7</b>	<b>0.4</b>	<b>0.4</b>	<b>0.5</b>	<b>0.7</b>	<b>0.5</b>	<i>0.6</i>	<i>0.7</i>	<i>0.8</i>	<i>0.5</i>	<i>0.5</i>	<i>0.7</i>	<b>2.0</b>	<i>2.5</i>	<i>2.4</i>
Other Industrial .....	<b>11.1</b>	<b>10.4</b>	<b>10.4</b>	<b>11.4</b>	<b>11.3</b>	<b>10.2</b>	<i>10.5</i>	<i>10.9</i>	<i>10.8</i>	<i>10.3</i>	<i>10.4</i>	<i>10.9</i>	<b>43.3</b>	<i>42.9</i>	<i>42.4</i>
Total Consumption .....	<b>229.0</b>	<b>216.5</b>	<b>253.5</b>	<b>226.1</b>	<b>248.6</b>	<b>212.3</b>	<i>253.6</i>	<i>228.7</i>	<i>235.8</i>	<i>209.4</i>	<i>251.3</i>	<i>221.9</i>	<b>925.1</b>	<i>943.2</i>	<i>918.4</i>
Discrepancy (c) .....	<b>8.4</b>	<b>2.1</b>	<b>-1.0</b>	<b>-7.9</b>	<b>3.7</b>	<b>-0.2</b>	<i>-5.8</i>	<i>0.0</i>	<i>0.5</i>	<i>0.5</i>	<i>0.5</i>	<i>0.6</i>	<b>1.7</b>	<i>-2.3</i>	<i>2.2</i>
<b>End-of-period Inventories (million short tons)</b>															
Primary Inventories (d) .....	<b>40.7</b>	<b>41.7</b>	<b>40.1</b>	<b>42.7</b>	<b>41.7</b>	<b>41.7</b>	<i>41.1</i>	<i>43.4</i>	<i>42.9</i>	<i>43.0</i>	<i>42.4</i>	<i>44.7</i>	<b>42.7</b>	<i>43.4</i>	<i>44.7</i>
Secondary Inventories .....	<b>178.2</b>	<b>177.5</b>	<b>159.6</b>	<b>154.8</b>	<b>123.7</b>	<b>139.4</b>	<i>131.4</i>	<i>139.1</i>	<i>140.8</i>	<i>149.8</i>	<i>136.7</i>	<i>142.3</i>	<b>154.8</b>	<i>139.1</i>	<i>142.3</i>
Electric Power Sector .....	<b>171.5</b>	<b>170.5</b>	<b>152.2</b>	<b>148.0</b>	<b>118.0</b>	<b>132.9</b>	<i>124.3</i>	<i>131.6</i>	<i>134.3</i>	<i>142.5</i>	<i>128.9</i>	<i>134.2</i>	<b>148.0</b>	<i>131.6</i>	<i>134.2</i>
Retail and General Industry .....	<b>4.0</b>	<b>4.0</b>	<b>4.3</b>	<b>4.1</b>	<b>3.5</b>	<b>3.9</b>	<i>4.6</i>	<i>5.0</i>	<i>4.4</i>	<i>4.7</i>	<i>5.3</i>	<i>5.6</i>	<b>4.1</b>	<i>5.0</i>	<i>5.6</i>
Coke Plants .....	<b>2.2</b>	<b>2.5</b>	<b>2.5</b>	<b>2.2</b>	<b>1.8</b>	<b>2.2</b>	<i>2.1</i>	<i>2.1</i>	<i>1.8</i>	<i>2.2</i>	<i>2.1</i>	<i>2.1</i>	<b>2.2</b>	<i>2.1</i>	<i>2.1</i>
<b>Coal Market Indicators</b>															
Coal Miner Productivity															
(Tons per hour) .....	<b>5.55</b>	<b>5.55</b>	<b>5.55</b>	<b>5.55</b>	<b>5.47</b>	<b>5.47</b>	<i>5.47</i>	<i>5.47</i>	<i>5.61</i>	<i>5.61</i>	<i>5.61</i>	<i>5.61</i>	<b>5.55</b>	<i>5.47</i>	<i>5.61</i>
Total Raw Steel Production															
(Million short tons per day) .....	<b>0.259</b>	<b>0.267</b>	<b>0.267</b>	<b>0.260</b>	<b>0.262</b>	<b>0.263</b>	<i>0.271</i>	<i>0.261</i>	<i>0.263</i>	<i>0.275</i>	<i>0.261</i>	<i>0.251</i>	<b>0.263</b>	<i>0.264</i>	<i>0.262</i>
Cost of Coal to Electric Utilities															
(Dollars per million Btu) .....	<b>2.35</b>	<b>2.37</b>	<b>2.33</b>	<b>2.34</b>	<b>2.33</b>	<b>2.39</b>	<i>2.36</i>	<i>2.35</i>	<i>2.36</i>	<i>2.36</i>	<i>2.35</i>	<i>2.36</i>	<b>2.35</b>	<i>2.36</i>	<i>2.36</i>

- = no data available

(a) Waste coal includes waste coal and coal slurry reprocessed into briquettes.

(b) Coal used for electricity generation and (a limited amount of) useful thermal output by electric utilities and independent power producers.

(c) The discrepancy reflects an unaccounted-for shipper and receiver reporting difference, assumed to be zero in the forecast period.

(d) Primary stocks are held at the mines and distribution points.

**Notes:** The approximate break between historical and forecast values is shown with historical data printed in bold; estimates and forecasts in italics.

**Historical data:** Latest data available from Energy Information Administration databases supporting the following reports: *Quarterly Coal Report*, DOE/EIA-0121; and *Electric Power Monthly*, DOE/EIA-0226.

Minor discrepancies with published historical data are due to independent rounding.

**Projections:** EIA Regional Short-Term Energy Model.

Table 7a. U.S. Electricity Industry Overview

U.S. Energy Information Administration | Short-Term Energy Outlook - September 2014

	2013				2014				2015				Year		
	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	2013	2014	2015
<b>Electricity Supply (billion kilowatthours per day)</b>															
Electricity Generation .....	<b>10.92</b>	<b>10.73</b>	<b>12.15</b>	<b>10.66</b>	<b>11.47</b>	<b>10.75</b>	<i>12.12</i>	<i>10.56</i>	<i>11.21</i>	<i>10.89</i>	<i>12.34</i>	<i>10.66</i>	<b>11.12</b>	<i>11.22</i>	<i>11.28</i>
Electric Power Sector (a) .....	<b>10.48</b>	<b>10.31</b>	<b>11.71</b>	<b>10.23</b>	<b>11.04</b>	<b>10.34</b>	<i>11.67</i>	<i>10.12</i>	<i>10.78</i>	<i>10.48</i>	<i>11.89</i>	<i>10.22</i>	<b>10.68</b>	<i>10.79</i>	<i>10.84</i>
Comm. and Indus. Sectors (b) .....	<b>0.44</b>	<b>0.42</b>	<b>0.45</b>	<b>0.44</b>	<b>0.43</b>	<b>0.40</b>	<i>0.45</i>	<i>0.44</i>	<i>0.43</i>	<i>0.40</i>	<i>0.45</i>	<i>0.44</i>	<b>0.44</b>	<i>0.43</i>	<i>0.43</i>
Net Imports .....	<b>0.13</b>	<b>0.14</b>	<b>0.17</b>	<b>0.13</b>	<b>0.11</b>	<b>0.12</b>	<i>0.14</i>	<i>0.10</i>	<i>0.11</i>	<i>0.11</i>	<i>0.14</i>	<i>0.10</i>	<b>0.14</b>	<i>0.11</i>	<i>0.11</i>
Total Supply .....	<b>11.06</b>	<b>10.87</b>	<b>12.32</b>	<b>10.79</b>	<b>11.58</b>	<b>10.87</b>	<i>12.25</i>	<i>10.65</i>	<i>11.32</i>	<i>11.00</i>	<i>12.48</i>	<i>10.75</i>	<b>11.26</b>	<i>11.34</i>	<i>11.39</i>
Losses and Unaccounted for (c) .....	<b>0.66</b>	<b>0.84</b>	<b>0.77</b>	<b>0.79</b>	<b>0.67</b>	<b>0.84</b>	<i>0.75</i>	<i>0.71</i>	<i>0.60</i>	<i>0.90</i>	<i>0.77</i>	<i>0.72</i>	<b>0.77</b>	<i>0.74</i>	<i>0.75</i>
<b>Electricity Consumption (billion kilowatthours per day unless noted)</b>															
Retail Sales .....	<b>10.01</b>	<b>9.66</b>	<b>11.16</b>	<b>9.62</b>	<b>10.53</b>	<b>9.67</b>	<i>11.11</i>	<i>9.56</i>	<i>10.34</i>	<i>9.74</i>	<i>11.31</i>	<i>9.65</i>	<b>10.11</b>	<i>10.22</i>	<i>10.26</i>
Residential Sector .....	<b>3.96</b>	<b>3.38</b>	<b>4.37</b>	<b>3.53</b>	<b>4.35</b>	<b>3.36</b>	<i>4.34</i>	<i>3.50</i>	<i>4.12</i>	<i>3.36</i>	<i>4.44</i>	<i>3.50</i>	<b>3.81</b>	<i>3.88</i>	<i>3.86</i>
Commercial Sector .....	<b>3.47</b>	<b>3.60</b>	<b>4.07</b>	<b>3.53</b>	<b>3.62</b>	<b>3.64</b>	<i>4.06</i>	<i>3.47</i>	<i>3.62</i>	<i>3.66</i>	<i>4.08</i>	<i>3.50</i>	<b>3.67</b>	<i>3.70</i>	<i>3.71</i>
Industrial Sector .....	<b>2.56</b>	<b>2.65</b>	<b>2.70</b>	<b>2.55</b>	<b>2.54</b>	<b>2.66</b>	<i>2.69</i>	<i>2.57</i>	<i>2.59</i>	<i>2.70</i>	<i>2.77</i>	<i>2.63</i>	<b>2.62</b>	<i>2.62</i>	<i>2.67</i>
Transportation Sector .....	<b>0.02</b>	<b>0.02</b>	<b>0.02</b>	<b>0.02</b>	<b>0.02</b>	<b>0.02</b>	<i>0.02</i>	<i>0.02</i>	<i>0.02</i>	<i>0.02</i>	<i>0.02</i>	<i>0.02</i>	<b>0.02</b>	<i>0.02</i>	<i>0.02</i>
Direct Use (d) .....	<b>0.39</b>	<b>0.37</b>	<b>0.39</b>	<b>0.38</b>	<b>0.38</b>	<b>0.35</b>	<i>0.39</i>	<i>0.38</i>	<i>0.38</i>	<i>0.35</i>	<i>0.39</i>	<i>0.39</i>	<b>0.38</b>	<i>0.38</i>	<i>0.38</i>
Total Consumption .....	<b>10.39</b>	<b>10.03</b>	<b>11.55</b>	<b>10.00</b>	<b>10.91</b>	<b>10.03</b>	<i>11.50</i>	<i>9.94</i>	<i>10.72</i>	<i>10.10</i>	<i>11.71</i>	<i>10.04</i>	<b>10.50</b>	<i>10.60</i>	<i>10.64</i>
Average residential electricity usage per customer (kWh) .....	<b>2,794</b>	<b>2,412</b>	<b>3,146</b>	<b>2,536</b>	<b>3,048</b>	<b>2,376</b>	<i>3,099</i>	<i>2,495</i>	<i>2,869</i>	<i>2,363</i>	<i>3,152</i>	<i>2,480</i>	<b>10,888</b>	<i>11,018</i>	<i>10,864</i>
<b>Prices</b>															
<b>Power Generation Fuel Costs (dollars per million Btu)</b>															
Coal .....	<b>2.35</b>	<b>2.37</b>	<b>2.33</b>	<b>2.34</b>	<b>2.33</b>	<b>2.39</b>	<i>2.36</i>	<i>2.35</i>	<i>2.36</i>	<i>2.36</i>	<i>2.35</i>	<i>2.36</i>	<b>2.35</b>	<i>2.36</i>	<i>2.36</i>
Natural Gas .....	<b>4.35</b>	<b>4.56</b>	<b>4.06</b>	<b>4.41</b>	<b>6.82</b>	<b>4.93</b>	<i>4.61</i>	<i>4.93</i>	<i>4.93</i>	<i>4.33</i>	<i>4.46</i>	<i>4.85</i>	<b>4.32</b>	<i>5.25</i>	<i>4.62</i>
Residual Fuel Oil .....	<b>19.37</b>	<b>19.83</b>	<b>18.76</b>	<b>19.47</b>	<b>19.95</b>	<b>21.09</b>	<i>19.42</i>	<i>18.86</i>	<i>18.44</i>	<i>18.52</i>	<i>18.36</i>	<i>18.24</i>	<b>19.33</b>	<i>19.85</i>	<i>18.39</i>
Distillate Fuel Oil .....	<b>23.44</b>	<b>22.62</b>	<b>23.23</b>	<b>22.97</b>	<b>23.39</b>	<b>22.74</b>	<i>22.10</i>	<i>22.64</i>	<i>23.24</i>	<i>23.12</i>	<i>22.90</i>	<i>23.40</i>	<b>23.08</b>	<i>22.98</i>	<i>23.16</i>
<b>End-Use Prices (cents per kilowatthour)</b>															
Residential Sector .....	<b>11.56</b>	<b>12.31</b>	<b>12.54</b>	<b>12.01</b>	<b>11.90</b>	<b>12.73</b>	<i>12.98</i>	<i>12.36</i>	<i>12.28</i>	<i>12.91</i>	<i>13.09</i>	<i>12.49</i>	<b>12.12</b>	<i>12.49</i>	<i>12.70</i>
Commercial Sector .....	<b>9.96</b>	<b>10.33</b>	<b>10.68</b>	<b>10.14</b>	<b>10.57</b>	<b>10.63</b>	<i>10.99</i>	<i>10.44</i>	<i>10.66</i>	<i>10.72</i>	<i>11.08</i>	<i>10.54</i>	<b>10.29</b>	<i>10.67</i>	<i>10.76</i>
Industrial Sector .....	<b>6.55</b>	<b>6.79</b>	<b>7.24</b>	<b>6.67</b>	<b>7.02</b>	<b>6.94</b>	<i>7.41</i>	<i>6.82</i>	<i>6.78</i>	<i>6.99</i>	<i>7.44</i>	<i>6.84</i>	<b>6.82</b>	<i>7.05</i>	<i>7.02</i>

- = no data available. kWh = kilowatthours. Btu = British thermal units.

Prices are not adjusted for inflation.

(a) Generation supplied by electricity-only and combined-heat-and-power (CHP) plants operated by electric utilities and independent power producers.

(b) Generation supplied by CHP and electricity-only plants operated by businesses in the commercial and industrial sectors, primarily for onsite use.

(c) Includes transmission and distribution losses, data collection time-frame differences, and estimation error.

(d) Direct Use represents commercial and industrial facility use of onsite net electricity generation; and electrical sales or transfers to adjacent or colocated facilities for which revenue information is not available. See Table 7.6 of the EIA *Monthly Energy Review*.**Notes:** The approximate break between historical and forecast values is shown with historical data printed in bold; estimates and forecasts in italics.**Historical data:** Latest data available from Energy Information Administration databases supporting the following reports: *Electric Power Monthly*, DOE/EIA-0226; and *Electric Power Annual*, DOE/EIA-0348.

Minor discrepancies with published historical data are due to independent rounding.

**Projections:** EIA Regional Short-Term Energy Model.

**Table 7b. U.S. Regional Electricity Retail Sales (Million Kilowatthours per Day)**

U.S. Energy Information Administration | Short-Term Energy Outlook - September 2014

	2013				2014				2015				Year		
	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	2013	2014	2015
<b>Residential Sector</b>															
New England .....	144	115	146	122	154	111	134	123	147	113	138	124	132	130	130
Middle Atlantic .....	390	324	416	330	423	315	398	332	400	321	418	331	365	367	368
E. N. Central .....	562	447	553	495	616	446	537	486	566	439	563	485	514	521	513
W. N. Central .....	322	247	310	275	352	246	297	267	324	241	310	266	288	291	285
S. Atlantic .....	962	846	1,075	873	1,081	858	1,098	872	1,023	853	1,129	874	939	977	970
E. S. Central .....	344	280	366	294	404	278	375	290	371	281	387	290	321	337	332
W. S. Central .....	529	517	755	517	641	501	735	505	590	514	737	505	580	596	587
Mountain .....	253	248	328	227	239	242	331	227	249	243	343	231	264	260	267
Pacific contiguous .....	436	346	412	385	421	347	418	381	434	344	404	382	395	392	391
AK and HI .....	14	12	12	13	14	11	12	13	14	12	12	13	13	13	13
Total .....	3,955	3,384	4,373	3,531	4,345	3,355	4,336	3,497	4,117	3,361	4,441	3,502	3,811	3,882	3,855
<b>Commercial Sector</b>															
New England .....	121	118	135	117	153	138	156	134	151	137	157	134	123	145	145
Middle Atlantic .....	427	414	474	412	442	413	460	402	440	414	462	402	432	429	429
E. N. Central .....	492	490	539	489	510	490	529	475	506	496	537	478	503	501	504
W. N. Central .....	270	266	298	271	284	273	291	264	279	277	297	268	277	278	280
S. Atlantic .....	781	832	918	799	803	842	918	778	800	842	917	785	833	836	836
E. S. Central .....	228	243	288	231	239	237	288	223	240	236	286	225	248	247	247
W. S. Central .....	462	514	610	504	495	522	612	491	496	529	616	496	523	530	535
Mountain .....	237	262	287	243	239	257	288	242	243	263	290	244	257	257	260
Pacific contiguous .....	430	448	500	444	438	447	504	446	443	449	501	447	456	459	460
AK and HI .....	17	16	17	17	17	16	17	17	17	16	17	17	17	17	17
Total .....	3,466	3,604	4,066	3,527	3,620	3,636	4,064	3,472	3,615	3,660	4,081	3,496	3,667	3,699	3,713
<b>Industrial Sector</b>															
New England .....	72	73	78	71	49	49	54	49	49	49	54	49	74	50	50
Middle Atlantic .....	188	186	193	188	201	198	198	191	198	199	205	198	189	197	200
E. N. Central .....	533	534	539	513	525	532	538	512	532	540	551	527	530	527	538
W. N. Central .....	230	239	251	238	234	240	255	246	245	253	269	257	240	244	256
S. Atlantic .....	367	388	397	373	372	397	396	381	372	401	405	386	381	386	391
E. S. Central .....	317	312	286	277	279	287	278	279	287	292	290	287	298	281	289
W. S. Central .....	407	435	448	422	431	465	457	437	440	466	462	443	428	448	453
Mountain .....	210	235	246	217	213	239	253	225	223	246	264	230	227	232	241
Pacific contiguous .....	224	235	251	234	226	240	250	236	226	242	256	241	236	238	241
AK and HI .....	13	14	14	14	13	14	14	14	14	14	15	14	14	14	14
Total .....	2,563	2,650	2,703	2,546	2,543	2,660	2,691	2,570	2,586	2,702	2,770	2,633	2,616	2,616	2,673
<b>Total All Sectors (a)</b>															
New England .....	339	308	360	311	357	300	345	308	349	301	351	308	330	328	327
Middle Atlantic .....	1,017	935	1,095	940	1,078	936	1,067	937	1,051	946	1,096	944	997	1,004	1,009
E. N. Central .....	1,589	1,473	1,632	1,497	1,654	1,469	1,605	1,475	1,606	1,477	1,653	1,491	1,548	1,551	1,557
W. N. Central .....	823	752	859	784	870	760	843	776	848	770	877	790	805	812	821
S. Atlantic .....	2,114	2,070	2,393	2,049	2,260	2,100	2,416	2,035	2,199	2,100	2,455	2,048	2,157	2,203	2,201
E. S. Central .....	890	836	940	801	922	803	941	793	897	809	964	803	867	864	868
W. S. Central .....	1,399	1,467	1,813	1,443	1,567	1,488	1,805	1,434	1,526	1,509	1,815	1,444	1,531	1,574	1,574
Mountain .....	700	745	862	686	692	739	872	695	716	753	897	706	749	750	768
Pacific contiguous .....	1,092	1,031	1,165	1,066	1,087	1,037	1,174	1,064	1,105	1,037	1,163	1,072	1,088	1,090	1,094
AK and HI .....	43	42	43	44	44	41	43	44	44	42	43	45	43	43	43
Total .....	10,006	9,658	11,163	9,623	10,531	9,673	11,113	9,560	10,341	9,744	11,314	9,652	10,114	10,219	10,264

- = no data available

(a) Total retail sales to all sectors includes residential, commercial, industrial, and transportation sector sales.

**Notes:** The approximate break between historical and forecast values is shown with historical data printed in bold; estimates and forecasts in italics.

Retail Sales represents total retail electricity sales by electric utilities and power marketers.

Regions refer to U.S. Census divisions.

See "Census division" in EIA's Energy Glossary (<http://www.eia.doe.gov/glossary/index.html>) for a list of States in each region.**Historical data:** Latest data available from Energy Information Administration databases supporting the following reports: *Electric Power Monthly*, DOE/EIA-0226; and *Electric Power Annual*, DOE/EIA-0348.

Minor discrepancies with published historical data are due to independent rounding.

**Projections:** EIA Regional Short-Term Energy Model.

**Table 7c. U.S. Regional Electricity Prices (Cents per Kilowatthour)**

U.S. Energy Information Administration | Short-Term Energy Outlook - September 2014

	2013				2014				2015				Year		
	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	2013	2014	2015
<b>Residential Sector</b>															
New England .....	15.59	16.12	16.01	17.21	17.46	18.04	17.30	17.17	17.35	17.71	17.71	17.60	16.20	17.47	17.59
Middle Atlantic .....	15.09	15.70	16.48	15.53	16.28	16.58	17.24	16.20	16.15	16.91	17.29	16.45	15.72	16.59	16.71
E. N. Central .....	11.48	12.45	12.30	11.87	11.56	12.95	13.20	12.65	12.08	13.20	13.38	12.86	12.01	12.54	12.87
W. N. Central .....	9.95	11.40	12.06	10.43	10.05	11.80	12.40	10.70	10.36	12.07	12.55	10.91	10.95	11.18	11.45
S. Atlantic .....	10.88	11.48	11.77	11.27	11.31	11.98	12.09	11.50	11.59	12.09	12.09	11.45	11.37	11.72	11.81
E. S. Central .....	10.05	10.71	10.64	10.28	10.30	11.21	11.03	10.72	10.86	11.42	11.24	10.89	10.42	10.78	11.09
W. S. Central .....	10.23	10.95	10.92	10.75	10.37	11.44	11.43	11.20	10.93	11.28	11.26	11.00	10.73	11.10	11.12
Mountain .....	10.46	11.52	11.99	11.09	10.94	12.02	12.41	11.43	11.24	12.30	12.71	11.72	11.32	11.77	12.06
Pacific .....	12.80	13.72	14.60	13.32	12.97	12.78	14.46	12.94	13.41	13.36	14.92	13.49	13.60	13.32	13.81
U.S. Average .....	11.56	12.31	12.54	12.01	11.90	12.73	12.98	12.36	12.28	12.91	13.09	12.49	12.12	12.49	12.70
<b>Commercial Sector</b>															
New England .....	14.37	13.76	13.83	14.40	15.24	14.07	14.22	14.30	14.61	14.34	14.28	14.40	14.08	14.47	14.41
Middle Atlantic .....	12.70	12.85	13.89	12.45	14.26	13.28	14.31	12.90	14.34	13.30	14.27	13.16	13.00	13.72	13.79
E. N. Central .....	9.34	9.65	9.65	9.39	9.69	9.93	9.90	9.56	9.81	10.01	9.98	9.64	9.51	9.77	9.86
W. N. Central .....	8.36	9.22	9.66	8.49	8.60	9.38	9.89	8.71	8.78	9.54	10.01	8.85	8.95	9.16	9.31
S. Atlantic .....	9.30	9.34	9.48	9.42	9.83	9.67	9.75	9.69	9.92	9.81	9.85	9.79	9.39	9.74	9.84
E. S. Central .....	9.82	9.91	9.76	9.78	10.28	10.51	10.51	10.48	10.50	10.58	10.65	10.62	9.82	10.45	10.59
W. S. Central .....	8.07	8.19	8.14	8.02	8.12	8.30	8.32	8.21	8.08	8.09	8.14	8.04	8.11	8.24	8.09
Mountain .....	8.83	9.47	9.80	9.26	9.18	9.82	10.12	9.52	9.37	10.00	10.31	9.71	9.37	9.69	9.87
Pacific .....	11.04	12.94	14.38	12.43	11.95	13.14	14.49	12.67	12.28	13.52	14.99	12.97	12.77	13.12	13.49
U.S. Average .....	9.96	10.33	10.68	10.14	10.57	10.63	10.99	10.44	10.66	10.72	11.08	10.54	10.29	10.67	10.76
<b>Industrial Sector</b>															
New England .....	12.38	11.92	12.46	11.89	12.96	11.27	12.77	12.19	12.10	11.94	12.33	11.76	12.17	12.31	12.04
Middle Atlantic .....	7.30	7.23	7.47	7.00	8.75	7.37	7.93	7.49	7.78	7.74	7.93	7.49	7.25	7.89	7.74
E. N. Central .....	6.42	6.62	6.75	6.49	7.00	6.83	6.95	6.67	6.75	6.85	7.02	6.74	6.57	6.86	6.84
W. N. Central .....	6.33	6.58	7.15	6.28	6.56	6.68	7.27	6.34	6.43	6.76	7.40	6.45	6.60	6.72	6.77
S. Atlantic .....	6.30	6.44	6.77	6.41	6.80	6.67	7.02	6.62	6.64	6.77	7.08	6.67	6.48	6.78	6.79
E. S. Central .....	5.65	5.91	6.63	5.65	6.18	6.22	6.61	5.88	5.94	6.24	6.73	5.99	5.96	6.22	6.23
W. S. Central .....	5.60	5.88	6.17	5.73	5.87	6.04	6.29	5.87	5.78	5.95	6.20	5.78	5.86	6.02	5.93
Mountain .....	5.89	6.44	7.18	6.23	6.21	6.76	7.55	6.40	6.33	6.87	7.71	6.54	6.46	6.76	6.90
Pacific .....	7.41	8.14	8.93	8.22	7.96	8.30	9.27	8.38	7.82	8.25	9.15	8.28	8.20	8.50	8.40
U.S. Average .....	6.55	6.79	7.24	6.67	7.02	6.94	7.41	6.82	6.78	6.99	7.44	6.84	6.82	7.05	7.02
<b>All Sectors (a)</b>															
New England .....	14.43	14.18	14.40	14.92	15.85	15.05	15.17	15.09	15.38	15.19	15.31	15.23	14.48	15.31	15.28
Middle Atlantic .....	12.61	12.70	13.73	12.43	14.00	13.13	14.20	12.95	13.77	13.34	14.21	13.10	12.90	13.61	13.63
E. N. Central .....	9.11	9.40	9.59	9.21	9.53	9.72	10.01	9.57	9.59	9.80	10.15	9.66	9.33	9.71	9.81
W. N. Central .....	8.42	9.09	9.79	8.50	8.64	9.31	9.99	8.64	8.70	9.42	10.11	8.77	8.96	9.15	9.26
S. Atlantic .....	9.50	9.67	10.06	9.66	10.04	10.05	10.37	9.89	10.14	10.15	10.42	9.91	9.73	10.10	10.17
E. S. Central .....	8.42	8.68	9.15	8.53	9.05	9.22	9.57	8.95	9.19	9.30	9.71	9.06	8.71	9.21	9.33
W. S. Central .....	8.17	8.48	8.81	8.33	8.42	8.65	9.07	8.55	8.52	8.52	8.91	8.38	8.47	8.69	8.60
Mountain .....	8.54	9.20	9.89	8.91	8.87	9.55	10.24	9.14	9.07	9.72	10.46	9.34	9.18	9.50	9.70
Pacific .....	10.99	12.10	13.28	11.82	11.51	11.89	13.36	11.81	11.81	12.23	13.67	12.09	12.07	12.17	12.47
U.S. Average .....	9.72	10.05	10.58	9.91	10.26	10.34	10.90	10.17	10.33	10.44	10.98	10.24	10.08	10.43	10.51

- = no data available

Prices are not adjusted for inflation.

(a) Volume-weighted average of retail prices to residential, commercial, industrial, and transportation sectors.

**Notes:** The approximate break between historical and forecast values is shown with historical data printed in bold; estimates and forecasts in italics.

Regions refer to U.S. Census divisions.

 See "Census division" in EIA's Energy Glossary (<http://www.eia.doe.gov/glossary/index.html>) for a list of States in each region.

**Historical data:** Latest data available from Energy Information Administration databases supporting the following reports: *Electric Power Monthly*, DOE/EIA-0226; and *Electric Power Annual*, DOE/EIA-0348.

Minor discrepancies with published historical data are due to independent rounding.

**Projections:** EIA Regional Short-Term Energy Model.

**Table 7d. U.S. Regional Electricity Generation, All Sectors (Thousand megawatthours per day)**

U.S. Energy Information Administration | Short-Term Energy Outlook - September 2014

	2013				2014				2015				Year		
	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	2013	2014	2015
<b>United States</b>															
Coal .....	4,367	4,077	4,747	4,187	4,873	4,037	4,820	4,281	4,593	3,996	4,771	4,135	4,345	4,502	4,374
Natural Gas .....	2,802	2,843	3,694	2,858	2,700	2,870	3,596	2,807	2,809	2,954	3,789	2,887	3,051	2,995	3,112
Petroleum (a) .....	74	73	81	66	147	63	70	62	75	65	75	62	74	85	69
Other Gases .....	32	33	36	33	28	29	37	34	28	30	38	35	34	32	33
Nuclear .....	2,176	2,044	2,257	2,168	2,201	2,060	2,230	2,010	2,144	2,074	2,206	2,055	2,162	2,125	2,120
Renewable Energy Sources:															
Conventional Hydropower .....	736	886	716	613	703	850	672	601	747	864	705	640	737	706	739
Wind .....	491	520	353	475	553	549	388	485	533	579	422	549	459	493	520
Wood Biomass .....	110	100	114	113	116	112	124	119	121	118	127	122	109	118	122
Waste Biomass .....	53	56	55	54	51	53	56	57	55	58	60	59	55	54	58
Geothermal .....	46	45	45	45	45	45	46	46	47	45	46	47	45	45	46
Solar .....	16	27	31	27	33	61	61	38	41	84	85	49	25	48	65
Pumped Storage Hydropower .....	-13	-11	-13	-12	-12	-17	-19	-15	-14	-14	-19	-16	-12	-16	-16
Other Nonrenewable Fuels (b) .....	33	34	36	33	31	33	35	33	33	35	36	34	34	33	34
Total Generation .....	10,925	10,727	12,153	10,661	11,470	10,746	12,116	10,559	11,211	10,888	12,342	10,658	11,118	11,223	11,276
<b>Northeast Census Region</b>															
Coal .....	330	276	287	238	359	250	277	255	344	207	279	232	283	285	265
Natural Gas .....	451	480	610	445	409	480	598	464	464	519	641	493	497	488	530
Petroleum (a) .....	12	4	8	6	55	2	4	4	7	4	5	3	7	16	5
Other Gases .....	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Nuclear .....	561	489	543	533	542	471	530	476	490	474	504	468	532	505	484
Hydropower (c) .....	101	95	91	95	97	104	82	100	106	112	89	99	95	96	101
Other Renewables (d) .....	66	61	55	68	72	63	59	69	71	63	60	73	62	66	67
Other Nonrenewable Fuels (b) .....	12	13	13	12	11	12	12	12	11	12	12	12	12	12	12
Total Generation .....	1,535	1,421	1,609	1,399	1,547	1,384	1,565	1,382	1,495	1,393	1,593	1,382	1,491	1,469	1,466
<b>South Census Region</b>															
Coal .....	1,776	1,753	2,087	1,754	2,122	1,851	2,128	1,758	1,911	1,777	2,048	1,648	1,843	1,964	1,846
Natural Gas .....	1,599	1,673	2,049	1,590	1,538	1,722	2,046	1,555	1,610	1,781	2,163	1,628	1,729	1,716	1,797
Petroleum (a) .....	27	36	38	25	54	28	31	24	31	27	31	23	32	34	28
Other Gases .....	12	14	15	14	11	11	14	14	11	11	15	14	14	12	13
Nuclear .....	908	929	1,007	935	966	882	976	885	955	923	982	920	945	927	945
Hydropower (c) .....	150	147	134	116	146	103	115	119	156	111	126	118	137	121	128
Other Renewables (d) .....	218	239	181	215	239	254	206	236	255	277	231	274	213	234	259
Other Nonrenewable Fuels (b) .....	13	13	14	13	13	13	14	13	13	14	15	13	13	13	14
Total Generation .....	4,705	4,803	5,526	4,660	5,089	4,862	5,531	4,604	4,942	4,922	5,611	4,638	4,925	5,022	5,029
<b>Midwest Census Region</b>															
Coal .....	1,656	1,500	1,753	1,599	1,805	1,440	1,764	1,640	1,749	1,485	1,800	1,635	1,627	1,662	1,667
Natural Gas .....	197	186	244	176	194	179	175	154	171	174	222	159	201	175	181
Petroleum (a) .....	11	10	12	13	14	13	11	10	12	10	12	10	11	12	11
Other Gases .....	11	11	13	12	11	12	13	12	11	12	14	13	12	12	12
Nuclear .....	548	476	534	549	533	543	560	498	538	520	553	513	527	534	531
Hydropower (c) .....	30	41	35	26	30	42	32	28	33	46	35	27	33	33	35
Other Renewables (d) .....	216	199	141	221	251	213	146	220	236	225	158	242	194	207	215
Other Nonrenewable Fuels (b) .....	4	4	5	4	4	5	5	4	4	5	5	4	4	4	4
Total Generation .....	2,673	2,429	2,737	2,599	2,841	2,446	2,707	2,567	2,752	2,477	2,798	2,602	2,609	2,640	2,657
<b>West Census Region</b>															
Coal .....	605	547	620	596	587	497	651	627	589	528	644	620	592	591	596
Natural Gas .....	555	504	790	647	558	489	777	634	564	480	763	608	625	615	604
Petroleum (a) .....	24	23	23	23	24	21	23	25	25	24	26	26	23	23	25
Other Gases .....	6	6	6	6	5	5	6	6	5	5	6	6	6	6	6
Nuclear .....	159	150	173	152	160	164	165	150	162	156	166	154	158	160	160
Hydropower (c) .....	442	592	443	364	418	585	424	339	438	581	437	380	460	441	459
Other Renewables (d) .....	217	249	222	210	236	290	263	221	236	318	291	238	225	253	271
Other Nonrenewable Fuels (b) .....	4	3	4	4	4	3	4	4	4	4	5	4	4	4	4
Total Generation .....	2,013	2,075	2,281	2,003	1,992	2,054	2,313	2,006	2,023	2,096	2,339	2,036	2,093	2,092	2,124

(a) Residual fuel oil, distillate fuel oil, petroleum coke, and other petroleum liquids.

(b) Batteries, chemicals, hydrogen, pitch, purchased steam, sulfur, nonrenewable waste, and miscellaneous technologies.

(c) Conventional hydroelectric and pumped storage generation.

(d) Wind, biomass, geothermal, and solar generation.

**Notes:** Data reflect generation supplied by electricity-only and combined-heat-and-power (CHP) plants operated by electric utilities, independent power producers, and the commercial and industrial sectors. The approximate break between historical and forecast values is shown with historical data printed in bold; estimates and forecasts in italics.

**Historical data:** Latest data available from U.S. Energy Information Administration *Electric Power Monthly* and *Electric Power Annual*.

**Projections:** EIA Regional Short-Term Energy Model.



**Table 7e. U.S. Regional Fuel Consumption for Electricity Generation, All Sectors**  
U.S. Energy Information Administration | Short-Term Energy Outlook - September 2014

	2013				2014				2015				Year		
	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	2013	2014	2015
<b>Fuel Consumption for Electricity Generation, All Sectors</b>															
<b>United States</b>															
Coal (thousand st/d) .....	<b>2,361</b>	<b>2,207</b>	<b>2,586</b>	<b>2,278</b>	<b>2,582</b>	<b>2,169</b>	<b>2,585</b>	<b>2,307</b>	<b>2,445</b>	<b>2,136</b>	<b>2,559</b>	<b>2,232</b>	<b>2,358</b>	<b>2,410</b>	<b>2,343</b>
Natural Gas (million cf/d) .....	<b>20,952</b>	<b>21,902</b>	<b>28,751</b>	<b>21,615</b>	<b>20,530</b>	<b>21,903</b>	<b>27,789</b>	<b>20,955</b>	<b>21,015</b>	<b>22,810</b>	<b>29,434</b>	<b>21,639</b>	<b>23,322</b>	<b>22,809</b>	<b>23,742</b>
Petroleum (thousand b/d) .....	<b>128</b>	<b>127</b>	<b>144</b>	<b>119</b>	<b>258</b>	<b>110</b>	<b>122</b>	<b>111</b>	<b>134</b>	<b>116</b>	<b>132</b>	<b>112</b>	<b>129</b>	<b>150</b>	<b>123</b>
Residual Fuel Oil .....	<b>38</b>	<b>28</b>	<b>36</b>	<b>30</b>	<b>86</b>	<b>24</b>	<b>29</b>	<b>27</b>	<b>29</b>	<b>26</b>	<b>31</b>	<b>27</b>	<b>33</b>	<b>41</b>	<b>28</b>
Distillate Fuel Oil .....	<b>26</b>	<b>24</b>	<b>27</b>	<b>26</b>	<b>85</b>	<b>23</b>	<b>24</b>	<b>25</b>	<b>33</b>	<b>26</b>	<b>27</b>	<b>25</b>	<b>25</b>	<b>39</b>	<b>28</b>
Petroleum Coke (a) .....	<b>59</b>	<b>72</b>	<b>78</b>	<b>60</b>	<b>70</b>	<b>61</b>	<b>65</b>	<b>55</b>	<b>65</b>	<b>59</b>	<b>68</b>	<b>55</b>	<b>67</b>	<b>63</b>	<b>62</b>
Other Petroleum Liquids (b) ....	<b>5</b>	<b>3</b>	<b>4</b>	<b>4</b>	<b>17</b>	<b>2</b>	<b>4</b>	<b>5</b>	<b>8</b>	<b>5</b>	<b>5</b>	<b>5</b>	<b>4</b>	<b>7</b>	<b>6</b>
<b>Northeast Census Region</b>															
Coal (thousand st/d) .....	<b>149</b>	<b>125</b>	<b>132</b>	<b>108</b>	<b>164</b>	<b>116</b>	<b>128</b>	<b>117</b>	<b>157</b>	<b>96</b>	<b>129</b>	<b>107</b>	<b>128</b>	<b>131</b>	<b>122</b>
Natural Gas (million cf/d) .....	<b>3,415</b>	<b>3,668</b>	<b>4,716</b>	<b>3,352</b>	<b>3,153</b>	<b>3,659</b>	<b>4,628</b>	<b>3,472</b>	<b>3,513</b>	<b>3,994</b>	<b>5,006</b>	<b>3,720</b>	<b>3,790</b>	<b>3,732</b>	<b>4,061</b>
Petroleum (thousand b/d) .....	<b>20</b>	<b>7</b>	<b>15</b>	<b>11</b>	<b>92</b>	<b>4</b>	<b>8</b>	<b>7</b>	<b>14</b>	<b>7</b>	<b>10</b>	<b>7</b>	<b>13</b>	<b>27</b>	<b>9</b>
<b>South Census Region</b>															
Coal (thousand st/d) .....	<b>940</b>	<b>937</b>	<b>1,119</b>	<b>933</b>	<b>1,084</b>	<b>969</b>	<b>1,108</b>	<b>921</b>	<b>981</b>	<b>921</b>	<b>1,065</b>	<b>862</b>	<b>983</b>	<b>1,020</b>	<b>957</b>
Natural Gas (million cf/d) .....	<b>11,919</b>	<b>12,884</b>	<b>16,050</b>	<b>12,043</b>	<b>11,689</b>	<b>13,113</b>	<b>15,820</b>	<b>11,595</b>	<b>12,010</b>	<b>13,744</b>	<b>16,792</b>	<b>12,181</b>	<b>13,232</b>	<b>13,061</b>	<b>13,690</b>
Petroleum (thousand b/d) .....	<b>52</b>	<b>67</b>	<b>72</b>	<b>47</b>	<b>103</b>	<b>52</b>	<b>59</b>	<b>46</b>	<b>60</b>	<b>52</b>	<b>60</b>	<b>44</b>	<b>60</b>	<b>65</b>	<b>54</b>
<b>Midwest Census Region</b>															
Coal (thousand st/d) .....	<b>933</b>	<b>842</b>	<b>989</b>	<b>902</b>	<b>1,006</b>	<b>811</b>	<b>987</b>	<b>916</b>	<b>976</b>	<b>828</b>	<b>1,007</b>	<b>914</b>	<b>917</b>	<b>930</b>	<b>931</b>
Natural Gas (million cf/d) .....	<b>1,530</b>	<b>1,518</b>	<b>2,064</b>	<b>1,441</b>	<b>1,587</b>	<b>1,441</b>	<b>1,458</b>	<b>1,222</b>	<b>1,356</b>	<b>1,434</b>	<b>1,865</b>	<b>1,269</b>	<b>1,639</b>	<b>1,426</b>	<b>1,482</b>
Petroleum (thousand b/d) .....	<b>20</b>	<b>17</b>	<b>20</b>	<b>23</b>	<b>27</b>	<b>23</b>	<b>20</b>	<b>20</b>	<b>21</b>	<b>19</b>	<b>20</b>	<b>20</b>	<b>20</b>	<b>22</b>	<b>20</b>
<b>West Census Region</b>															
Coal (thousand st/d) .....	<b>340</b>	<b>302</b>	<b>346</b>	<b>335</b>	<b>328</b>	<b>274</b>	<b>362</b>	<b>352</b>	<b>331</b>	<b>292</b>	<b>358</b>	<b>348</b>	<b>331</b>	<b>329</b>	<b>332</b>
Natural Gas (million cf/d) .....	<b>4,089</b>	<b>3,832</b>	<b>5,922</b>	<b>4,779</b>	<b>4,101</b>	<b>3,690</b>	<b>5,882</b>	<b>4,665</b>	<b>4,136</b>	<b>3,637</b>	<b>5,772</b>	<b>4,469</b>	<b>4,661</b>	<b>4,590</b>	<b>4,508</b>
Petroleum (thousand b/d) .....	<b>37</b>	<b>35</b>	<b>36</b>	<b>37</b>	<b>37</b>	<b>31</b>	<b>35</b>	<b>39</b>	<b>39</b>	<b>38</b>	<b>41</b>	<b>41</b>	<b>36</b>	<b>35</b>	<b>40</b>
<b>End-of-period U.S. Fuel Inventories Held by Electric Power Sector</b>															
Coal (million short tons) .....	<b>171.5</b>	<b>170.5</b>	<b>152.2</b>	<b>148.0</b>	<b>118.0</b>	<b>132.9</b>	<b>124.3</b>	<b>131.6</b>	<b>134.3</b>	<b>142.5</b>	<b>128.9</b>	<b>134.2</b>	<b>148.0</b>	<b>131.6</b>	<b>134.2</b>
Residual Fuel Oil (mmb) .....	<b>12.9</b>	<b>12.1</b>	<b>12.2</b>	<b>12.9</b>	<b>10.5</b>	<b>10.7</b>	<b>11.0</b>	<b>11.5</b>	<b>11.5</b>	<b>11.4</b>	<b>11.2</b>	<b>11.3</b>	<b>12.9</b>	<b>11.5</b>	<b>11.3</b>
Distillate Fuel Oil (mmb) .....	<b>16.2</b>	<b>15.9</b>	<b>15.5</b>	<b>15.7</b>	<b>15.4</b>	<b>15.6</b>	<b>15.5</b>	<b>15.7</b>	<b>15.7</b>	<b>15.5</b>	<b>15.4</b>	<b>15.5</b>	<b>15.7</b>	<b>15.7</b>	<b>15.5</b>
Petroleum Coke (mmb) .....	<b>2.0</b>	<b>2.0</b>	<b>1.5</b>	<b>1.9</b>	<b>1.7</b>	<b>2.0</b>	<b>2.2</b>	<b>2.3</b>	<b>2.4</b>	<b>2.5</b>	<b>2.5</b>	<b>2.6</b>	<b>1.9</b>	<b>2.3</b>	<b>2.6</b>

(a) Petroleum coke consumption converted from short tons to barrels by multiplying by five.

(b) Other petroleum liquids include jet fuel, kerosene, and waste oil.

**Notes:** Data reflect generation supplied by electricity-only and combined-heat-and-power (CHP) plants operated by electric utilities, independent power producers, and the commercial and industrial sectors. Data include fuel consumed only for generation of electricity. Values do not include consumption by CHP plants for useful thermal output.

The approximate break between historical and forecast values is shown with historical data printed in bold; estimates and forecasts in italics.

Physical Units: st/d = short tons per day; b/d = barrels per day; cf/d = cubic feet per day; mmb = million barrels.

**Historical data:** Latest data available from U.S. Energy Information Administration *Electric Power Monthly* and *Electric Power Annual*.

**Projections:** EIA Regional Short-Term Energy Model.

**Table 8. U.S. Renewable Energy Consumption (Quadrillion Btu)**

U.S. Energy Information Administration | Short-Term Energy Outlook - September 2014

	2013				2014				2015				Year		
	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	2013	2014	2015
<b>Electric Power Sector</b>															
Hydroelectric Power (a) .....	<b>0.621</b>	<b>0.759</b>	<b>0.619</b>	<b>0.529</b>	<b>0.595</b>	<b>0.731</b>	<i>0.581</i>	<i>0.519</i>	<i>0.632</i>	<i>0.743</i>	<i>0.610</i>	<i>0.553</i>	<b>2.529</b>	2.426	2.538
Wood Biomass (b) .....	<b>0.049</b>	<b>0.045</b>	<b>0.056</b>	<b>0.056</b>	<b>0.065</b>	<b>0.059</b>	<i>0.074</i>	<i>0.070</i>	<i>0.072</i>	<i>0.066</i>	<i>0.079</i>	<i>0.073</i>	<b>0.207</b>	0.267	0.290
Waste Biomass (c) .....	<b>0.062</b>	<b>0.065</b>	<b>0.065</b>	<b>0.067</b>	<b>0.061</b>	<b>0.062</b>	<i>0.068</i>	<i>0.069</i>	<i>0.066</i>	<i>0.070</i>	<i>0.073</i>	<i>0.072</i>	<b>0.258</b>	0.260	0.282
Wind .....	<b>0.420</b>	<b>0.450</b>	<b>0.309</b>	<b>0.416</b>	<b>0.473</b>	<b>0.475</b>	<i>0.340</i>	<i>0.425</i>	<i>0.456</i>	<i>0.501</i>	<i>0.369</i>	<i>0.480</i>	<b>1.595</b>	1.713	1.807
Geothermal .....	<b>0.040</b>	<b>0.039</b>	<b>0.039</b>	<b>0.039</b>	<b>0.038</b>	<b>0.039</b>	<i>0.040</i>	<i>0.040</i>	<i>0.040</i>	<i>0.039</i>	<i>0.041</i>	<i>0.042</i>	<b>0.157</b>	0.158	0.161
Solar .....	<b>0.013</b>	<b>0.023</b>	<b>0.026</b>	<b>0.023</b>	<b>0.028</b>	<b>0.051</b>	<i>0.052</i>	<i>0.033</i>	<i>0.034</i>	<i>0.071</i>	<i>0.073</i>	<i>0.042</i>	<b>0.085</b>	0.164	0.220
Subtotal .....	<b>1.206</b>	<b>1.380</b>	<b>1.115</b>	<b>1.130</b>	<b>1.260</b>	<b>1.401</b>	<i>1.155</i>	<i>1.156</i>	<i>1.300</i>	<i>1.490</i>	<i>1.246</i>	<i>1.262</i>	<b>4.831</b>	4.972	5.298
<b>Industrial Sector</b>															
Hydroelectric Power (a) .....	<b>0.009</b>	<b>0.008</b>	<b>0.007</b>	<b>0.007</b>	<b>0.008</b>	<b>0.006</b>	<i>0.007</i>	<i>0.007</i>	<i>0.007</i>	<i>0.006</i>	<i>0.007</i>	<i>0.007</i>	<b>0.032</b>	0.028	0.027
Wood Biomass (b) .....	<b>0.318</b>	<b>0.310</b>	<b>0.328</b>	<b>0.324</b>	<b>0.305</b>	<b>0.314</b>	<i>0.312</i>	<i>0.308</i>	<i>0.297</i>	<i>0.292</i>	<i>0.306</i>	<i>0.310</i>	<b>1.281</b>	1.238	1.206
Waste Biomass (c) .....	<b>0.042</b>	<b>0.042</b>	<b>0.043</b>	<b>0.044</b>	<b>0.042</b>	<b>0.042</b>	<i>0.045</i>	<i>0.044</i>	<i>0.042</i>	<i>0.040</i>	<i>0.045</i>	<i>0.044</i>	<b>0.171</b>	0.172	0.171
Geothermal .....	<b>0.001</b>	<b>0.001</b>	<b>0.001</b>	<b>0.001</b>	<b>0.001</b>	<b>0.001</b>	<i>0.001</i>	<i>0.001</i>	<i>0.001</i>	<i>0.001</i>	<i>0.001</i>	<i>0.001</i>	<b>0.004</b>	0.004	0.004
Subtotal .....	<b>0.374</b>	<b>0.366</b>	<b>0.384</b>	<b>0.380</b>	<b>0.359</b>	<b>0.367</b>	<i>0.369</i>	<i>0.364</i>	<i>0.351</i>	<i>0.344</i>	<i>0.364</i>	<i>0.366</i>	<b>1.505</b>	1.459	1.425
<b>Commercial Sector</b>															
Wood Biomass (b) .....	<b>0.017</b>	<b>0.017</b>	<b>0.018</b>	<b>0.018</b>	<b>0.018</b>	<b>0.018</b>	<i>0.022</i>	<i>0.023</i>	<i>0.023</i>	<i>0.021</i>	<i>0.024</i>	<i>0.024</i>	<b>0.070</b>	0.081	0.092
Waste Biomass (c) .....	<b>0.012</b>	<b>0.011</b>	<b>0.011</b>	<b>0.012</b>	<b>0.011</b>	<b>0.011</b>	<i>0.012</i>	<i>0.012</i>	<i>0.011</i>	<i>0.011</i>	<i>0.012</i>	<i>0.012</i>	<b>0.046</b>	0.046	0.046
Geothermal .....	<b>0.005</b>	<b>0.005</b>	<b>0.005</b>	<b>0.005</b>	<b>0.005</b>	<b>0.005</b>	<i>0.005</i>	<i>0.005</i>	<i>0.005</i>	<i>0.005</i>	<i>0.005</i>	<i>0.005</i>	<b>0.020</b>	0.020	0.020
Subtotal .....	<b>0.034</b>	<b>0.034</b>	<b>0.039</b>	<b>0.037</b>	<b>0.035</b>	<b>0.035</b>	<i>0.041</i>	<i>0.042</i>	<i>0.041</i>	<i>0.040</i>	<i>0.043</i>	<i>0.043</i>	<b>0.143</b>	0.154	0.167
<b>Residential Sector</b>															
Wood Biomass (b) .....	<b>0.143</b>	<b>0.145</b>	<b>0.146</b>	<b>0.146</b>	<b>0.143</b>	<b>0.145</b>	<i>0.146</i>	<i>0.146</i>	<i>0.141</i>	<i>0.142</i>	<i>0.144</i>	<i>0.144</i>	<b>0.580</b>	0.580	0.571
Geothermal .....	<b>0.010</b>	<b>0.010</b>	<b>0.010</b>	<b>0.010</b>	<b>0.010</b>	<b>0.010</b>	<i>0.010</i>	<i>0.010</i>	<i>0.010</i>	<i>0.010</i>	<i>0.010</i>	<i>0.010</i>	<b>0.040</b>	0.039	0.040
Solar (d) .....	<b>0.054</b>	<b>0.055</b>	<b>0.055</b>	<b>0.055</b>	<b>0.062</b>	<b>0.063</b>	<i>0.063</i>	<i>0.063</i>	<i>0.075</i>	<i>0.076</i>	<i>0.076</i>	<i>0.076</i>	<b>0.219</b>	0.252	0.303
Subtotal .....	<b>0.207</b>	<b>0.209</b>	<b>0.211</b>	<b>0.211</b>	<b>0.215</b>	<b>0.217</b>	<i>0.220</i>	<i>0.220</i>	<i>0.226</i>	<i>0.228</i>	<i>0.230</i>	<i>0.230</i>	<b>0.839</b>	0.871	0.914
<b>Transportation Sector</b>															
Ethanol (e) .....	<b>0.257</b>	<b>0.283</b>	<b>0.276</b>	<b>0.281</b>	<b>0.263</b>	<b>0.287</b>	<i>0.286</i>	<i>0.278</i>	<i>0.266</i>	<i>0.280</i>	<i>0.280</i>	<i>0.276</i>	<b>1.097</b>	1.114	1.102
Biodiesel (e) .....	<b>0.031</b>	<b>0.046</b>	<b>0.056</b>	<b>0.070</b>	<b>0.040</b>	<b>0.048</b>	<i>0.049</i>	<i>0.051</i>	<i>0.047</i>	<i>0.049</i>	<i>0.050</i>	<i>0.051</i>	<b>0.203</b>	0.188	0.196
Subtotal .....	<b>0.288</b>	<b>0.329</b>	<b>0.332</b>	<b>0.351</b>	<b>0.303</b>	<b>0.336</b>	<i>0.335</i>	<i>0.329</i>	<i>0.312</i>	<i>0.329</i>	<i>0.330</i>	<i>0.327</i>	<b>1.300</b>	1.303	1.298
<b>All Sectors Total</b>															
Hydroelectric Power (a) .....	<b>0.631</b>	<b>0.767</b>	<b>0.627</b>	<b>0.536</b>	<b>0.602</b>	<b>0.737</b>	<i>0.588</i>	<i>0.526</i>	<i>0.639</i>	<i>0.749</i>	<i>0.617</i>	<i>0.560</i>	<b>2.561</b>	2.454	2.565
Wood Biomass (b) .....	<b>0.528</b>	<b>0.517</b>	<b>0.549</b>	<b>0.544</b>	<b>0.530</b>	<b>0.534</b>	<i>0.554</i>	<i>0.547</i>	<i>0.532</i>	<i>0.522</i>	<i>0.553</i>	<i>0.550</i>	<b>2.138</b>	2.165	2.158
Waste Biomass (c) .....	<b>0.117</b>	<b>0.118</b>	<b>0.119</b>	<b>0.123</b>	<b>0.114</b>	<b>0.117</b>	<i>0.125</i>	<i>0.125</i>	<i>0.120</i>	<i>0.121</i>	<i>0.131</i>	<i>0.128</i>	<b>0.476</b>	0.480	0.499
Wind .....	<b>0.420</b>	<b>0.450</b>	<b>0.309</b>	<b>0.416</b>	<b>0.473</b>	<b>0.475</b>	<i>0.340</i>	<i>0.425</i>	<i>0.456</i>	<i>0.501</i>	<i>0.369</i>	<i>0.480</i>	<b>1.595</b>	1.713	1.807
Geothermal .....	<b>0.055</b>	<b>0.055</b>	<b>0.055</b>	<b>0.055</b>	<b>0.054</b>	<b>0.055</b>	<i>0.056</i>	<i>0.056</i>	<i>0.056</i>	<i>0.055</i>	<i>0.056</i>	<i>0.057</i>	<b>0.221</b>	0.221	0.225
Solar .....	<b>0.068</b>	<b>0.078</b>	<b>0.082</b>	<b>0.079</b>	<b>0.091</b>	<b>0.114</b>	<i>0.116</i>	<i>0.096</i>	<i>0.109</i>	<i>0.147</i>	<i>0.149</i>	<i>0.119</i>	<b>0.307</b>	0.417	0.524
Ethanol (e) .....	<b>0.260</b>	<b>0.287</b>	<b>0.285</b>	<b>0.287</b>	<b>0.268</b>	<b>0.289</b>	<i>0.288</i>	<i>0.284</i>	<i>0.272</i>	<i>0.286</i>	<i>0.287</i>	<i>0.283</i>	<b>1.120</b>	1.129	1.128
Biodiesel (e) .....	<b>0.031</b>	<b>0.046</b>	<b>0.056</b>	<b>0.070</b>	<b>0.040</b>	<b>0.048</b>	<i>0.049</i>	<i>0.051</i>	<i>0.047</i>	<i>0.049</i>	<i>0.050</i>	<i>0.051</i>	<b>0.203</b>	0.188	0.196
<b>Total Consumption</b> .....	<b>2.110</b>	<b>2.318</b>	<b>2.081</b>	<b>2.110</b>	<b>2.173</b>	<b>2.358</b>	<i>2.120</i>	<i>2.110</i>	<i>2.230</i>	<i>2.430</i>	<i>2.212</i>	<i>2.228</i>	<b>8.620</b>	8.761	9.101

- = no data available

(a) Conventional hydroelectric power only. Hydroelectricity generated by pumped storage is not included in renewable energy.

(b) Wood and wood-derived fuels.

(c) Municipal solid waste from biogenic sources, landfill gas, sludge waste, agricultural byproducts, and other biomass.

(d) Includes small-scale solar thermal and photovoltaic energy used in the commercial, industrial, and electric power sectors.

(e) Fuel ethanol and biodiesel consumption in the transportation sector includes production, stock change, and imports less exports. Some biodiesel may be consumed in the residential sector in heating oil.

**Notes:** The approximate break between historical and forecast values is shown with historical data printed in bold; estimates and forecasts in italics.

**Historical data:** Latest data available from EIA databases supporting the following reports: *Electric Power Monthly*, DOE/EIA-0226 and *Renewable Energy Annual*, DOE/EIA-0603; *Petroleum Supply Monthly*, DOE/EIA-0109.

Minor discrepancies with published historical data are due to independent rounding.

**Projections:** EIA Regional Short-Term Energy Model.

Table 9a. U.S. Macroeconomic Indicators and CC<sub>2</sub> Emissions

U.S. Energy Information Administration | Short-Term Energy Outlook - September 2014

	2013				2014				2015				Year		
	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	2013	2014	2015
<b>Macroeconomic</b>															
Real Gross Domestic Product															
(billion chained 2009 dollars - SAAR) .....	15,538	15,607	15,780	15,916	15,832	15,986	16,122	16,226	16,335	16,435	16,549	16,673	15,710	16,041	16,498
Real Personal Consumption Expend.															
(billion chained 2009 dollars - SAAR) .....	10,614	10,660	10,713	10,811	10,844	10,910	10,970	11,046	11,129	11,203	11,277	11,357	10,700	10,943	11,242
Real Fixed Investment															
(billion chained 2009 dollars - SAAR) .....	2,428	2,457	2,497	2,535	2,536	2,573	2,618	2,667	2,714	2,755	2,810	2,869	2,479	2,598	2,787
Business Inventory Change															
(billion chained 2009 dollars - SAAR) .....	44	51	111	91	40	110	96	83	66	57	51	48	74	82	56
Real Government Expenditures															
(billion chained 2009 dollars - SAAR) .....	2,900	2,901	2,902	2,875	2,869	2,880	2,887	2,892	2,891	2,891	2,891	2,894	2,894	2,882	2,892
Real Exports of Goods & Services															
(billion chained 2009 dollars - SAAR) .....	1,972	2,003	2,028	2,077	2,027	2,073	2,084	2,115	2,146	2,174	2,200	2,224	2,020	2,075	2,186
Real Imports of Goods & Services															
(billion chained 2009 dollars - SAAR) .....	2,399	2,449	2,452	2,460	2,474	2,544	2,518	2,562	2,597	2,630	2,663	2,703	2,440	2,525	2,648
Real Disposable Personal Income															
(billion chained 2009 dollars - SAAR) .....	11,539	11,647	11,706	11,712	11,813	11,922	11,987	12,034	12,145	12,220	12,308	12,406	11,651	11,939	12,270
Non-Farm Employment															
(millions) .....	135.5	136.1	136.6	137.2	137.8	138.5	139.2	139.9	140.6	141.3	141.9	142.5	136.4	138.9	141.5
Civilian Unemployment Rate															
(percent) .....	7.7	7.5	7.2	7.0	6.7	6.2	6.1	6.0	5.9	5.8	5.8	5.7	7.4	6.3	5.8
Housing Starts															
(millions - SAAR) .....	0.95	0.86	0.88	1.03	0.93	1.00	1.08	1.14	1.18	1.28	1.36	1.43	0.93	1.04	1.31
<b>Industrial Production Indices (Index, 2007=100)</b>															
Total Industrial Production .....	99.0	99.4	100.1	101.3	102.2	103.6	104.4	105.2	106.0	106.8	107.8	108.7	99.9	103.8	107.3
Manufacturing .....	97.1	97.5	97.9	99.0	99.4	101.1	102.2	102.7	103.5	104.4	105.4	106.3	97.9	101.3	104.9
Food .....	104.0	104.2	104.3	105.2	106.1	106.5	106.4	107.2	107.8	108.5	109.1	109.7	104.5	106.5	108.8
Paper .....	85.3	85.6	85.1	83.9	82.4	83.3	83.4	83.9	84.3	84.8	85.3	85.6	85.0	83.2	85.0
Petroleum and Coal Products .....	96.6	95.5	96.2	96.7	97.7	98.2	98.4	99.1	99.4	99.7	100.0	100.2	96.2	98.4	99.8
Chemicals .....	87.1	87.8	87.5	87.7	87.7	88.5	89.2	89.5	90.1	90.7	91.3	91.8	87.5	88.7	91.0
Nonmetallic Mineral Products .....	73.5	73.4	74.3	74.7	75.5	77.5	79.2	80.3	82.1	84.1	86.4	88.6	74.0	78.1	85.3
Primary Metals .....	99.7	99.4	100.8	103.1	101.9	105.0	106.3	106.6	108.2	109.3	110.6	111.9	100.8	104.9	110.0
Coal-weighted Manufacturing (a) .....	91.0	90.9	91.3	92.0	91.8	93.3	94.1	94.8	95.8	96.8	97.8	98.8	91.3	93.5	97.3
Distillate-weighted Manufacturing (a) .....	90.5	90.3	91.1	92.2	92.3	93.7	94.6	95.5	96.7	97.9	99.1	100.2	91.0	94.0	98.5
Electricity-weighted Manufacturing (a) .....	95.4	95.6	96.2	97.2	97.1	98.8	99.8	100.5	101.5	102.6	103.7	104.7	96.1	99.1	103.1
Natural Gas-weighted Manufacturing (a) ...	92.5	92.6	93.0	93.9	93.6	94.6	95.3	95.9	96.8	97.6	98.4	99.1	93.0	94.8	98.0
<b>Price Indexes</b>															
Consumer Price Index (all urban consumers)															
(index, 1982-1984=1.00) .....	2.32	2.32	2.33	2.34	2.35	2.37	2.38	2.39	2.40	2.41	2.42	2.43	2.33	2.37	2.41
Producer Price Index: All Commodities															
(index, 1982=1.00) .....	2.04	2.03	2.04	2.03	2.06	2.07	2.07	2.07	2.08	2.07	2.09	2.10	2.03	2.07	2.08
Producer Price Index: Petroleum															
(index, 1982=1.00) .....	3.01	2.96	2.99	2.83	2.88	2.99	2.88	2.75	2.79	2.91	2.90	2.78	2.95	2.88	2.84
GDP Implicit Price Deflator															
(index, 2009=100) .....	106.2	106.5	106.9	107.3	107.7	108.2	108.5	109.1	109.7	110.2	110.6	111.2	106.7	108.4	110.4
<b>Miscellaneous</b>															
Vehicle Miles Traveled (b)															
(million miles/day) .....	7,663	8,460	8,375	7,999	7,615	8,579	8,458	8,100	7,747	8,605	8,497	8,142	8,126	8,190	8,250
Air Travel Capacity															
(Available ton-miles/day, thousands) .....	507	536	542	516	503	545	549	520	512	549	552	524	526	529	534
Aircraft Utilization															
(Revenue ton-miles/day, thousands) .....	309	337	342	322	310	347	349	322	315	351	352	326	328	332	336
Airline Ticket Price Index															
(index, 1982-1984=100) .....	310.4	323.5	307.0	309.9	297.3	334.3	302.9	299.1	315.9	348.0	324.8	313.5	312.7	308.4	325.6
Raw Steel Production															
(million short tons per day) .....	0.259	0.267	0.267	0.260	0.262	0.263	0.271	0.261	0.263	0.275	0.261	0.251	0.263	0.264	0.262
<b>Carbon Dioxide (CO<sub>2</sub>) Emissions (million metric tons)</b>															
Petroleum .....	549	562	580	577	556	567	580	574	557	571	582	576	2,269	2,278	2,286
Natural Gas .....	424	290	299	378	456	294	299	368	431	302	312	374	1,391	1,416	1,419
Coal .....	427	403	471	421	461	400	472	426	440	391	469	414	1,722	1,758	1,714
Total Fossil Fuels .....	1,400	1,256	1,350	1,376	1,473	1,261	1,350	1,367	1,427	1,264	1,362	1,365	5,381	5,451	5,418

- = no data available

SAAR = Seasonally-adjusted annual rate

(a) Fuel share weights of individual sector indices based on EIA *Manufacturing Energy Consumption Survey*.

(b) Total highway travel includes gasoline and diesel fuel vehicles.

**Notes:** The approximate break between historical and forecast values is shown with historical data printed in bold; estimates and forecasts in italics.**Historical data:** Latest data available from U.S. Department of Commerce, Bureau of Economic Analysis; Federal Reserve System, Statistical release G17; Federal Highway Administration; and Federal Aviation Administration. Minor discrepancies with published historical data are due to independent rounding.**Projections:** EIA Regional Short-Term Energy Model. Macroeconomic projections are based on Global Insight Model of the U.S. Economy.

**Table 9b. U.S. Regional Macroeconomic Data**

U.S. Energy Information Administration | Short-Term Energy Outlook - September 2014

	2013				2014				2015				Year		
	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	2013	2014	2015
<b>Real Gross State Product (Billion \$2009)</b>															
New England .....	846	849	856	862	857	862	869	873	878	882	887	892	853	865	885
Middle Atlantic .....	2,341	2,344	2,361	2,369	2,353	2,370	2,385	2,397	2,411	2,422	2,436	2,452	2,354	2,376	2,430
E. N. Central .....	2,160	2,165	2,189	2,212	2,198	2,216	2,232	2,244	2,257	2,268	2,279	2,293	2,181	2,222	2,274
W. N. Central .....	1,008	1,017	1,037	1,057	1,049	1,060	1,069	1,077	1,084	1,090	1,098	1,106	1,030	1,064	1,094
S. Atlantic .....	2,767	2,769	2,797	2,822	2,810	2,840	2,864	2,885	2,906	2,925	2,946	2,969	2,789	2,850	2,936
E. S. Central .....	719	719	726	732	727	734	740	744	749	754	759	764	724	736	756
W. S. Central .....	1,875	1,898	1,922	1,934	1,932	1,958	1,978	1,990	2,006	2,021	2,039	2,057	1,907	1,964	2,031
Mountain .....	1,005	1,013	1,025	1,036	1,030	1,041	1,051	1,059	1,067	1,075	1,084	1,093	1,020	1,045	1,080
Pacific .....	2,750	2,764	2,798	2,823	2,806	2,836	2,864	2,885	2,906	2,926	2,949	2,972	2,784	2,848	2,938
<b>Industrial Output, Manufacturing (Index, Year 2007=100)</b>															
New England .....	95.3	95.5	95.6	96.2	96.6	98.0	98.8	99.2	99.8	100.5	101.3	102.1	95.6	98.1	100.9
Middle Atlantic .....	93.2	93.3	93.4	94.1	94.0	94.9	95.7	96.1	96.8	97.6	98.5	99.2	93.5	95.2	98.0
E. N. Central .....	98.5	98.8	99.3	100.9	101.6	103.0	104.4	105.0	106.0	107.2	108.2	109.0	99.4	103.5	107.6
W. N. Central .....	100.2	100.6	100.9	102.3	102.8	104.9	106.0	106.5	107.3	108.4	109.4	110.3	101.0	105.0	108.8
S. Atlantic .....	92.7	93.0	93.5	94.6	94.9	96.6	97.6	97.9	98.6	99.3	100.1	100.8	93.4	96.8	99.7
E. S. Central .....	94.6	95.0	95.7	96.7	96.9	98.7	100.1	100.5	101.4	102.4	103.4	104.2	95.5	99.1	102.8
W. S. Central .....	102.1	102.3	102.6	104.0	104.6	106.7	108.0	108.5	109.5	110.5	111.7	112.7	102.8	107.0	111.1
Mountain .....	98.7	99.2	99.7	100.8	101.4	103.3	104.5	105.2	106.1	107.0	108.2	109.3	99.6	103.6	107.7
Pacific .....	98.0	98.5	98.9	99.8	99.9	101.4	102.4	102.8	103.6	104.5	105.5	106.2	98.8	101.6	105.0
<b>Real Personal Income (Billion \$2009)</b>															
New England .....	742	749	750	753	761	766	770	774	781	786	790	796	748	768	788
Middle Atlantic .....	1,991	2,014	2,020	2,024	2,046	2,057	2,068	2,080	2,100	2,110	2,122	2,140	2,012	2,063	2,118
E. N. Central .....	1,832	1,848	1,844	1,847	1,863	1,876	1,885	1,892	1,911	1,924	1,934	1,948	1,843	1,879	1,929
W. N. Central .....	869	872	879	873	876	884	889	893	903	909	916	925	873	885	913
S. Atlantic .....	2,440	2,462	2,464	2,471	2,493	2,518	2,534	2,547	2,577	2,597	2,616	2,639	2,459	2,523	2,607
E. S. Central .....	647	650	652	652	659	664	668	671	678	683	687	692	650	665	685
W. S. Central .....	1,486	1,502	1,513	1,515	1,532	1,550	1,564	1,576	1,594	1,609	1,622	1,638	1,504	1,556	1,616
Mountain .....	838	850	852	854	863	870	878	883	894	902	910	918	848	874	906
Pacific .....	2,219	2,246	2,273	2,283	2,297	2,320	2,337	2,351	2,376	2,396	2,415	2,438	2,255	2,326	2,406
<b>Households (Thousands)</b>															
New England .....	5,771	5,781	5,791	5,800	5,812	5,820	5,835	5,846	5,857	5,868	5,881	5,893	5,800	5,846	5,893
Middle Atlantic .....	15,893	15,927	15,958	15,985	16,022	16,050	16,086	16,116	16,146	16,174	16,209	16,244	15,985	16,116	16,244
E. N. Central .....	18,449	18,486	18,516	18,541	18,580	18,604	18,645	18,675	18,703	18,733	18,772	18,811	18,541	18,675	18,811
W. N. Central .....	8,355	8,382	8,407	8,429	8,457	8,478	8,506	8,530	8,554	8,579	8,606	8,634	8,429	8,530	8,634
S. Atlantic .....	24,064	24,160	24,254	24,341	24,445	24,534	24,640	24,735	24,829	24,923	25,026	25,130	24,341	24,735	25,130
E. S. Central .....	7,445	7,460	7,472	7,482	7,498	7,510	7,528	7,542	7,557	7,573	7,594	7,615	7,482	7,542	7,615
W. S. Central .....	13,877	13,930	13,981	14,028	14,084	14,132	14,192	14,246	14,301	14,358	14,420	14,482	14,028	14,246	14,482
Mountain .....	8,584	8,623	8,662	8,698	8,741	8,778	8,823	8,865	8,906	8,947	8,993	9,039	8,698	8,865	9,039
Pacific .....	17,938	17,995	18,054	18,102	18,165	18,212	18,274	18,331	18,389	18,449	18,515	18,578	18,102	18,331	18,578
<b>Total Non-farm Employment (Millions)</b>															
New England .....	7.0	7.0	7.0	7.0	7.1	7.1	7.1	7.2	7.2	7.2	7.2	7.2	7.0	7.1	7.2
Middle Atlantic .....	18.5	18.5	18.6	18.6	18.6	18.7	18.8	18.8	18.9	19.0	19.0	19.1	18.5	18.7	19.0
E. N. Central .....	20.8	20.8	20.9	21.0	21.0	21.0	21.1	21.2	21.3	21.4	21.4	21.5	20.8	21.1	21.4
W. N. Central .....	10.2	10.2	10.2	10.3	10.3	10.4	10.4	10.5	10.5	10.6	10.6	10.6	10.2	10.4	10.6
S. Atlantic .....	25.6	25.7	25.8	26.0	26.1	26.2	26.4	26.5	26.7	26.8	26.9	27.1	25.8	26.3	26.9
E. S. Central .....	7.5	7.6	7.6	7.6	7.6	7.7	7.7	7.7	7.8	7.8	7.8	7.9	7.6	7.7	7.8
W. S. Central .....	15.8	15.9	15.9	16.0	16.2	16.3	16.4	16.5	16.6	16.7	16.8	16.9	15.9	16.4	16.8
Mountain .....	9.4	9.5	9.5	9.6	9.7	9.7	9.8	9.9	9.9	10.0	10.0	10.1	9.5	9.8	10.0
Pacific .....	20.5	20.6	20.8	20.9	21.0	21.1	21.3	21.4	21.5	21.6	21.7	21.8	20.7	21.2	21.7

- = no data available

**Notes:** The approximate break between historical and forecast values is shown with historical data printed in bold; estimates and forecasts in italics.

Regions refer to U.S. Census divisions.

 See "Census division" in EIA's Energy Glossary (<http://www.eia.doe.gov/glossary/index.html>) for a list of States in each region.

**Historical data:** Latest data available from U.S. Department of Commerce, Bureau of Economic Analysis; Federal Reserve System, Statistical release G17.

Minor discrepancies with published historical data are due to independent rounding.

**Projections:** Macroeconomic projections are based on the Global Insight Model of the U.S. Economy.

Table 9c. U.S. Regional Weather Data

U.S. Energy Information Administration | Short-Term Energy Outlook - September 2014

	2013				2014				2015				Year		
	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	2013	2014	2015
<b>Heating Degree Days</b>															
New England .....	3,120	847	167	2,297	3,544	911	150	2,204	3,197	866	137	2,188	6,431	6,808	6,387
Middle Atlantic .....	2,948	691	128	2,061	3,402	680	100	1,991	2,927	676	89	1,996	5,828	6,172	5,687
E. N. Central .....	3,289	758	119	2,456	3,910	741	164	2,231	3,134	730	129	2,244	6,622	7,046	6,237
W. N. Central .....	3,408	903	100	2,722	3,864	767	161	2,411	3,197	686	154	2,420	7,133	7,202	6,457
South Atlantic .....	1,518	212	21	988	1,692	215	15	994	1,481	207	16	1,005	2,738	2,917	2,709
E. S. Central .....	1,932	286	15	1,409	2,238	264	29	1,332	1,866	258	23	1,335	3,642	3,863	3,482
W. S. Central .....	1,179	137	1	1,011	1,476	151	7	851	1,256	96	5	847	2,329	2,485	2,204
Mountain .....	2,414	730	126	1,996	2,079	579	126	1,860	2,194	658	139	1,839	5,266	4,644	4,830
Pacific .....	1,560	498	84	1,233	1,209	379	64	1,100	1,344	515	96	1,116	3,375	2,752	3,071
U.S. Average .....	2,221	510	76	1,660	2,426	470	80	1,537	2,128	479	78	1,541	4,467	4,512	4,225
<b>Heating Degree Days, Prior 10-year Average</b>															
New England .....	3,197	860	129	2,158	3,152	836	134	2,167	3,164	841	135	2,159	6,344	6,289	6,299
Middle Atlantic .....	2,937	678	84	1,978	2,905	659	88	1,982	2,931	664	90	1,978	5,678	5,635	5,663
E. N. Central .....	3,132	696	122	2,212	3,117	690	120	2,243	3,190	696	123	2,249	6,161	6,170	6,257
W. N. Central .....	3,210	667	156	2,362	3,209	686	149	2,404	3,273	692	148	2,423	6,394	6,448	6,536
South Atlantic .....	1,474	198	14	1,009	1,465	194	14	1,006	1,479	198	14	1,008	2,694	2,679	2,699
E. S. Central .....	1,819	231	21	1,323	1,810	236	19	1,336	1,850	239	20	1,350	3,393	3,401	3,459
W. S. Central .....	1,177	79	6	801	1,158	85	5	827	1,188	92	5	834	2,063	2,075	2,120
Mountain .....	2,237	728	158	1,869	2,267	728	156	1,887	2,254	717	148	1,883	4,993	5,037	5,001
Pacific .....	1,534	645	94	1,236	1,554	625	96	1,237	1,529	613	93	1,217	3,510	3,512	3,453
U.S. Average .....	2,172	499	77	1,558	2,161	492	77	1,569	2,180	492	77	1,567	4,306	4,299	4,316
<b>Cooling Degree Days</b>															
New England .....	0	96	442	0	0	83	327	0	0	87	410	1	538	411	498
Middle Atlantic .....	0	158	524	6	0	155	465	5	0	169	560	5	688	625	734
E. N. Central .....	0	213	471	6	0	220	429	8	0	218	544	8	690	656	770
W. N. Central .....	0	230	655	7	0	285	589	11	3	274	683	11	892	884	970
South Atlantic .....	107	591	1,038	255	108	691	1,079	223	109	622	1,136	221	1,990	2,100	2,088
E. S. Central .....	14	453	920	59	3	543	942	65	27	504	1,038	64	1,446	1,553	1,633
W. S. Central .....	73	784	1,514	165	42	821	1,430	189	71	825	1,472	190	2,536	2,482	2,559
Mountain .....	22	482	913	49	19	415	907	78	19	445	958	83	1,466	1,419	1,506
Pacific .....	26	218	593	49	32	225	681	74	31	197	569	74	886	1,012	872
U.S. Average .....	36	378	803	87	33	408	794	91	38	392	842	91	1,304	1,325	1,363
<b>Cooling Degree Days, Prior 10-year Average</b>															
New England .....	0	77	416	1	0	83	417	1	0	86	418	1	494	500	504
Middle Atlantic .....	0	159	560	4	0	167	559	5	0	168	561	6	724	731	734
E. N. Central .....	3	220	548	6	3	230	546	6	3	233	550	7	778	785	792
W. N. Central .....	7	273	684	9	7	277	678	9	7	284	688	9	974	972	988
South Atlantic .....	112	633	1,157	208	109	636	1,153	212	110	639	1,156	212	2,110	2,111	2,117
E. S. Central .....	36	525	1,049	57	35	528	1,046	57	32	530	1,055	52	1,667	1,666	1,670
W. S. Central .....	100	889	1,494	194	102	882	1,506	191	95	887	1,517	181	2,676	2,680	2,680
Mountain .....	17	411	934	77	18	421	922	70	16	421	933	74	1,440	1,432	1,445
Pacific .....	26	159	598	63	26	166	588	58	25	170	600	61	847	838	856
U.S. Average .....	42	387	844	84	41	393	843	83	40	397	851	83	1,357	1,360	1,371

- = no data available

**Notes:** Regional degree days for each period are calculated by EIA as contemporaneous period population-weighted averages of state degree day data published by the National Oceanic and Atmospheric Administration (NOAA).

See *Change in Regional and U.S. Degree-Day Calculations* ([http://www.eia.gov/forecasts/steo/special/pdf/2012\\_sp\\_04.pdf](http://www.eia.gov/forecasts/steo/special/pdf/2012_sp_04.pdf)) for more information.

The approximate break between historical and forecast values is shown with historical data printed in bold; estimates and forecasts in italics.

Regions refer to U.S. Census divisions. See "Census division" in EIA's Energy Glossary (<http://www.eia.gov/tools/glossary/>) for a list of states in each region.

**Historical data:** Latest data available from U.S. Department of Commerce, National Oceanic and Atmospheric Association (NOAA).

**Projections:** Based on forecasts by the NOAA Climate Prediction Center (<http://www.cpc.ncep.noaa.gov/pacdir/DDdir/NHOME3.shtml>).

# **Economic and Supply Impacts of a Reduced Cap on Gasoline Sulfur Content**

**Prepared for the**

**AMERICAN PETROLEUM INSTITUTE**

**by**

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# Abstract

Current federal regulations limit the annual average sulfur content of gasoline to 30 parts per million (“ppm”) by weight and place a maximum (or “cap”) of 80 ppm on each gallon. The U.S. Environmental Protection Agency (“EPA”) is preparing a proposed rulemaking for Tier 3 gasoline expected to require an annual average of 10 ppm sulfur, but whether, and to what extent, this will be accompanied by a reduction in the per-gallon cap is currently unclear. The American Petroleum Institute (“API”) engaged Turner, Mason & Company (“TM&C”) to study and evaluate the economic, supply and overall gasoline pool quality implications for imposing more stringent per-gallon sulfur caps on U.S. gasoline in addition to the assumed reduction in the annual average sulfur limit to 10 ppm.

To quantify the economic and supply impacts of a reduction of the sulfur cap, TM&C conducted an industry survey and independent modeling of refining industry capabilities. We combined the results of these analyses with our own industry experience and knowledge and information gathered through a search of relevant related studies and other literature. From this, TM&C has concluded that reducing the sulfur cap from 80 ppm will unnecessarily impose significant additional costs, and result in substantial additional supply losses beyond those caused by the 80 ppm cap. Specific results from the study which led to these conclusions include:

- 1) Average pool sulfur level, not the sulfur cap, is the key factor in determining the level of automotive emissions;
- 2) Vehicle technology that requires very low sulfur gasoline to operate effectively, lean Gasoline Direct Injection (GDI) with a NOx trap, will not achieve any significant market penetration in the U.S.;
- 3) Fungible product-mixing will likely result in a gasoline sulfur content at the retail level very close to the 10 ppm average in the vast majority of locations;
- 4) An annual average sulfur limit of 10 ppm will effectively impose a de facto sulfur cap with the probability that less than 1% of gasoline will exceed 50 ppm;
- 5) The cost to manufacture gasoline will increase as the sulfur cap is reduced from the current 80 ppm standard; capital costs range from approximately \$2 billion to over \$6 billion and annual operating costs are estimated at \$900 million for a 20 ppm cap. These costs are in addition to those required to meet a 10 ppm annual average limit;
- 6) Overall potential loss of gasoline supply will increase tenfold as the sulfur cap is reduced from the current 80 ppm standard, resulting in 130 MBPD of supply loss at a 20 ppm cap; and

7) Regions served by just a few refineries could experience shortages of 25% - 50% during outages of gasoline sulfur reduction units at a 20 ppm cap, while outages would be minimized at sulfur caps exceeding 50 ppm.



# Table of Contents

Abstract.....	1
I. Introduction .....	6
II. Executive Summary .....	7
Conclusions .....	7
Study Design .....	8
Literature Search .....	8
Industry Survey .....	9
Modeling and Analysis .....	11
III. Study Design and Assumptions .....	14
Regulatory Assumptions .....	14
Infrastructure Assessment .....	14
Literature Search .....	15
Industry Survey .....	15
Modeling and Analysis .....	16
IV. Literature Review .....	17
V. Survey Results .....	19
Section A – 2011 Gasoline Batch Data .....	19
Section B – Typical Process Operation for 2011 .....	20
Section C – Future Operations with Gasoline Sulfur Average of 10 ppm with Alternative Caps .....	21
Summary .....	26
VI. Modeling and Analysis .....	28
Statistical Analysis .....	28
Investment Optimization .....	30
Supply and Economic Ramifications for Turnarounds .....	32
How Regulations Are Implemented .....	33
Summary .....	33
VII. Conclusions .....	35
VIII. Appendix A – Literature Reviewed .....	38
IX. Appendix B – Survey Questionnaire .....	41

## LIST OF TABLES

Table II-1: Batch Sulfur Distribution for 2011 Gasoline Batches by Sulfur Category .....	10
Table II-2: Impacts of Different Sulfur Caps on Gasoline Supply And Refining Compliance Costs .....	11
Table II-3: Gasoline Pool Sulfur Distribution for Different High Sulfur Average Gasoline Combined with 8 ppm Sulfur Gasoline Base .....	12
Table V-1: Batch Sulfur Distribution for 2011 Gasoline Batches .....	20
Table V-2: FCC Gasoline Treatment by Process .....	20
Table V-3: FCC Gasoline Sulfur Distribution .....	21
Table V-4: Purchased Blendstocks .....	21
Table V-5: Probable Activities for Making 10 ppm Sulfur Gasoline .....	22
Table V-6: Making 10 ppm Sulfur Gasoline with an Unplanned Loss of Low Sulfur Blendstocks .....	23
Table V-7: Making 10 ppm Sulfur Gasoline with a Planned Loss of Low Sulfur Blendstocks .....	23
Table V-8: Making 10 ppm Sulfur Gasoline with a Planned or Unplanned Outage of the FCC Pre-treater or Post Treater .....	24
Table V-9: Additional Storage Capacity Required at Different Sulfur Caps .....	24
Table V-10: Estimated U.S. Gasoline Supply Loss at Different Sulfur Caps .....	25
Table V-11: Estimated Additional Compliance Capital Costs for the Different Sulfur Caps .....	26
Table VI-1: Sulfur Distribution for 8 ppm Average Base .....	28
Table VI-2: Sulfur Distributions for Different High Sulfur Combinations .....	29
Table VI-3: Potential Maximum Average Sulfur at One Refinery for Large Refiner Optimizing Investment .....	31

Table VI-4: Costs to Reduce Gasoline Sulfur at Different Sulfur Caps During FCC Gasoline Treater Turnaround, Non-CARB Gasoline .....	32
Table VII-1: Loss of Production During Turnarounds at Different Sulfur Caps .....	36

## LIST OF FIGURES

Figure II-1: Batch Sulfur Distribution for 2011 Batches by Sulfur Category .....	10
Figure II-2: “High Sulfur” Gasoline Will Be Tiny Fraction of Gasoline Pool .....	12
Figure VI-1: “High Sulfur” Gasoline Will Be Tiny Fraction of Gasoline Pool .....	28
Figure VI-2: Cumulative Sulfur Distribution For Different High Sulfur Combinations .....	29
Figure VI-3: Historic Average Sulfur Distribution .....	31

# I. Introduction

Current Federal regulations limit the sulfur in gasoline to a 30 ppm annual average with a maximum per-gallon cap of 80 ppm. EPA is preparing to issue a Notice of Proposed Rulemaking (“NPRM”) for Tier 3 Motor Vehicle Emission and Fuel Standards. The issuance of this NPRM has been delayed several times and is now expected to be published in early 2013. It is expected to establish a new annual average gasoline sulfur limit of 10 ppm but it is unclear if this will be accompanied by a more stringent per-gallon cap.

The purpose of this study is to evaluate the manufacturing costs and supply implications of imposing a more stringent sulfur cap in addition to reducing gasoline sulfur to a maximum annual average of 10 ppm. To accomplish this, TM&C independently analyzed the impact that reducing the 80 ppm sulfur cap would have on the domestic refining industry’s ability to produce gasoline, especially during upset conditions; studied how a more stringent sulfur cap would increase the cost of producing gasoline above the cost of meeting the 10 ppm annual average, and determined how refiners are likely to react to a more stringent sulfur cap.

To help assess costs and impacts, TM&C conducted a survey of the refining industry to determine the current capability of the industry and the approaches that refiners would likely pursue in meeting a 10 ppm average annual sulfur limit while also complying with more stringent sulfur caps. We also conducted targeted modeling of the industry to determine potential costs and supply impacts of meeting the average annual sulfur limit at different sulfur caps. Our work included an evaluation of the implications for the gasoline distribution system associated with a more stringent sulfur cap and the de facto standard a new regulation might create.

As part of this study, TM&C also reviewed all publicly available studies, research, reports and presentations that we could find that addressed the benefits and impacts of reducing sulfur levels in gasoline. We found very limited information on the costs specifically associated with per-gallon caps, as previous research focused almost exclusively on the impacts and cost of complying with annual average limits. Where relevant information was found, we incorporated this into our study design and results.

TM&C has conducted this study and prepared this report utilizing reasonable care in applying methodologies consistent with industry practice. No other representations or warranties, either expressed or implied, are made by TM&C. All results and estimates in this report are based on information available at the time of this study. To the extent that additional information becomes available or the factors upon which our analysis is based change, our opinions and estimates could be affected.

## II. Executive Summary

The base case assumption for this study is that EPA imposes a 10 ppm annual average sulfur limit with a sulfur cap on Tier 3 Gasoline for each facility producing or importing gasoline into the U.S. regions and territories described in the Tier 2 Gasoline Sulfur Regulations. The study then examines the additional impact that the imposition of various per-gallon sulfur caps on gasoline would have on gasoline supply and manufacturing cost.

### Conclusions

Based on our evaluation of individual and composite industry responses, TM&C concludes that reducing the sulfur cap from the current 80 ppm level will have significant negative impacts on the cost and supply of gasoline with negligible, if any, accompanying benefits. The costs and impacts increase progressively as the sulfur cap is lowered. The bases for these conclusions are summarized below:

- There are very limited, if any, emissions benefits derived from restrictive per-gallon sulfur caps in a 10 ppm annual average regulatory environment.
  - The vehicle technology (lean GDI with a NOx trap) that requires stringent per-gallon caps to operate effectively is not projected to achieve any significant U.S. market penetration<sup>1</sup>.
  - A statistical analysis shows that the annual average sulfur limit of 10 ppm will effectively impose a de facto sulfur cap with over 95% of the gasoline produced being below 30 ppm and likely less than 1% in the 50-80 ppm range.
  - Fungible product mixing will result in gasoline sulfur content at the retail level very close to the 10 ppm average in the vast majority of locations.<sup>2</sup>
- Restrictive per-gallon sulfur caps will reduce refiners' flexibility resulting in both higher capital and operating costs and a loss of gasoline supply, especially during outages at key units, such as pre- and post-FCC hydrotreating units.
  - Even with a sulfur cap of 80 ppm, refiners are restricted in the amount of gasoline they can produce. We estimate that without a per-gallon sulfur cap, refiners could have produced an additional 12 MBPD of domestic gasoline.

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<sup>1</sup> Martec, *Technology Cost and Adoption Analysis: Impact of Ultra-Low Sulfur Gasoline Standards*, April, 9, 2010

<sup>2</sup> WSPA, *CARB Fuels Workshop*, Presentation by Albie Hochhauser, March 23, 2007

- A reduction in the sulfur cap from 80 ppm to 20 ppm at a 10 ppm annual average sulfur level would result in a ten-fold increase in gasoline supply loss to 130 MBPD.
  - The cost to manufacture gasoline will increase as the sulfur cap is reduced from the current 80 ppm standard. Capital costs range from approximately \$2 billion to over \$6 billion; and annual operating costs are estimated at \$900 million for a 20 ppm cap. These costs are in addition to those required to meet a 10 ppm annual average limit.
  - Both gasoline supply losses and the required compliance capital are three times higher for a sulfur cap of 20 ppm compared to 60 ppm.
- Those regions in the U.S. that receive gasoline supplies from a limited number of refineries can expect to see severe supply disruptions when key gasoline units are down at the largest of the refineries under a 20 ppm sulfur cap regulation. Gasoline supply losses could range between 25% and 50% in isolated regions.

## ***Study Design***

TM&C used a three-part approach to understand the impacts of increasingly stringent sulfur caps on supply and manufacturing costs:

- Literature search;
- Industry survey; and
- Targeted modeling and analysis of the U.S. refining system.

## ***Literature Search***

Our literature search of public material provided relevant information regarding the following topics:

- The automotive emission reductions from reducing gasoline sulfur to as low as a 10 ppm annual average;
- The capabilities, projected implementation, and reaction to sulfur of different technologies for vehicle emissions control systems;
- The impact of how regulations are written and implemented on creating de facto sulfur limits; and
- The cost of reducing sulfur to an average sulfur level.

The literature survey did not provide the cost nor the supply impact of reducing the sulfur cap for a 10 ppm annual average sulfur maximum. To estimate this cost, TM&C conducted a survey of petroleum refiners and performed independent modeling calculations.

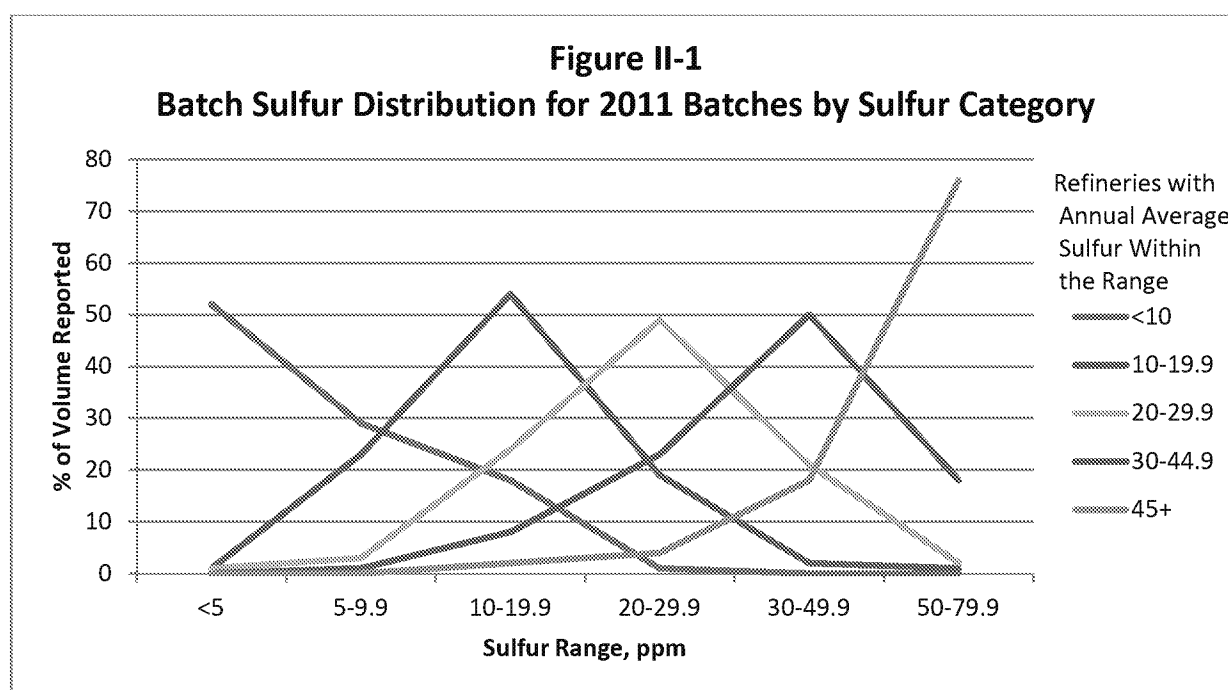
## ***Industry Survey***

The questionnaire prepared by TM&C and sent to U.S. refiners is included in Appendix B. TM&C received responses from 30% of the operating refineries representing 44% of the gasoline produced in the U.S. The respondents covered a broad range of refineries, both from a geographic and configuration standpoint. Using our engineering experience and judgment, supplemented by modeling, we used the information from responding refineries to estimate impacts at similarly configured and situated non-responding refineries. This allowed us to extrapolate the survey data to the entire U.S. refining industry.

In the survey, TM&C asked refineries to provide information about sulfur in the gasoline produced in 2011 by gasoline batch reported to the EPA. For 2011, the required annual average maximum gasoline sulfur allowed was 30 ppm with a per-gallon cap of 80 ppm. Participating refiners provided a breakdown of their individual batch sulfur in the six pre-defined categories denoted in Table II-1, ranging from <5 ppm to 50-80 ppm. As shown in Table II-1 and Figure II-1, the sulfur distributions fit a classic bell curve – the category representing the refinery's average sulfur level contained about 50-55% of the gasoline produced with about 20-25 % on either side.

Refiners indicated that to achieve the 10 ppm sulfur annual average, as expected, they would have to further reduce sulfur in their FCC gasoline. However, they also identified other streams, both purchased and produced, that would require sulfur reduction. As the sulfur cap is reduced, the ability to blend these other streams will be reduced and as a result they may require alternate dispositions.

<b>Table II-1</b>					
<b>Batch Sulfur Distribution for 2011 Gasoline Batches by Sulfur Category</b>					
	Refineries with Annual Average Sulfur Within the Range ppm				
	<10	10-19.9	20-29.9	30-44.9	≥45
% of Gasoline Produced	6	19	34	30	11
Average Sulfur, ppm	5.6	14.4	24.6	37.0	57.6
Volume Weighted Sulfur Distribution of Gasoline Batches, % of Volume Reported					
<5 ppm	52	1	1		
5-9.9 ppm	29	23	3	1	
10-19.9 ppm	18	54	24	8	2
20-29.9 ppm	1	19	49	23	4
30-49.9 ppm	<1	2	21	50	18
50-79.9 ppm		<1	2	18	76



Based on survey responses and our modeling work, TM&C has determined that as the sulfur cap is reduced, refiners will face increased difficulty maintaining the gasoline supply during turnarounds on sulfur reducing units. Even at the current 80 ppm sulfur cap, refiners responded that without the cap they could have produced an estimated additional 12 MBPD of gasoline for the domestic market. As shown in Table II-2, calculated probable annual average gasoline supply losses increase as the sulfur cap tightens. At a sulfur cap of 20 ppm, the loss of gasoline production increases more than ten-fold to almost 130 MBPD.



<b>Table II-2</b> <b>Impacts of Different Sulfur Caps on</b> <b>Gasoline Supply and Refining Compliance Costs</b>					
	Sulfur Cap, ppm				
	80	60	40	30	20
Extrapolated Estimated Annual Average Gasoline Supply Loss					
Supply Loss, MBPD	12	43	63	108	129
Extrapolated Total U.S. Compliance Capital Cost					
Additional Capital Cost, \$ billion		1.8	3.4	5.5	6.1
Note: For each row, cells are color coded in increasing color gradients to show the progression of change.					

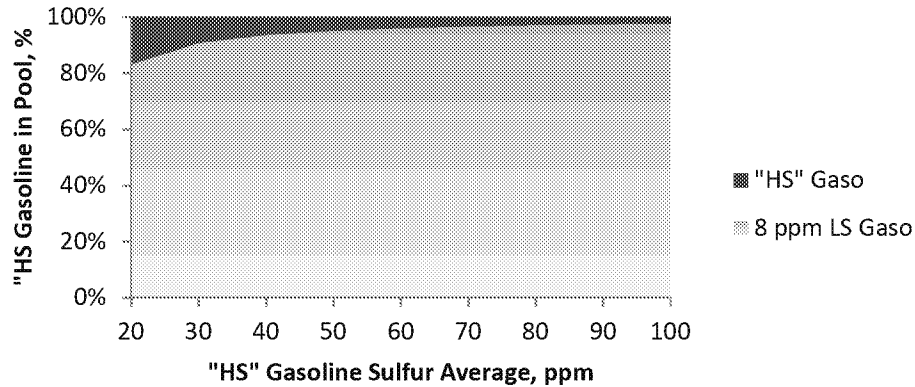
Based on the survey, TM&C calculated the additional cost for the U.S. refining industry to comply with the Tier 3 Gasoline Sulfur Regulations at the five different sulfur caps presented. These costs, which are shown in Table II-2, are in addition to those for reducing the annual average sulfur in gasoline from 30 ppm to 10 ppm. As shown in Table II-2, the additional cost ranged from \$1.8 billion for a 60 ppm cap to \$6.1 billion if a 20 ppm cap is imposed.

## ***Modeling and Analysis***

An annual average sulfur specification imposes limits on the volume of higher sulfur gasoline which can be produced. TM&C performed a two-step statistical analysis to determine one “de facto” cap this represents. First we analyzed how much higher sulfur gasoline could be produced at different averages and still comply with the 10 ppm average, assuming the majority of the gasoline is produced at 8 ppm (typical compliance margin allowance). As shown in Figure II-2, if 5% of the gasoline pool were higher sulfur, that volume would have to average less than 50 ppm for the overall pool to comply with the 10 ppm average. If 10% of the gasoline pool is higher sulfur, it would have to average less than 30 ppm to comply with the overall 10 ppm average. Based on survey results and our discussions with refiners on how they would handle turnarounds and other deviations from steady-state operations, we anticipate that the average sulfur of the high sulfur gasoline would be about 40 ppm for 6% of the gasoline pool.

Using gasoline batch sulfur distribution patterns from the survey TM&C conducted, we calculated a distribution pattern for the gasoline pool at three different levels of average high sulfur gasoline combined with the 8 ppm base. Based on our discussion above, we anticipate that the gasoline pool sulfur distribution for the 37 ppm high sulfur gasoline case shown in Table II-3 would be the most likely distribution at an 80 ppm sulfur cap.

**Figure II-2**  
**"High Sulfur" Gasoline Will Be Tiny**  
**Fraction of Gasoline Pool**



Sulfur Range	If the High Sulfur Gasoline Averages		
	25 ppm	37 ppm	58 ppm
<5 ppm	25%	26%	27%
5-9.9 ppm	32%	34%	35%
10-19.9 ppm	32%	31%	32%
20-29.9 ppm	8%	3%	2%
30-49.9 ppm	3%	4%	2%
50-80 ppm	0%	1%	3%
Note: Due to rounding, columns may not add to exactly 100%.			

As shown in Table II-3, regardless of the average sulfur level of the high sulfur gasoline, with an 80 ppm cap and a 10 ppm annual average sulfur requirement, no more than about 10% of the gasoline batches at the refinery level would exceed 20 ppm; and only about 5% of the gasoline batches would exceed 30 ppm. Considering the fact that the gasoline distribution system provides for significant mixing of fungible product, TM&C would expect very few gasoline batches above 20 ppm at the retail level in almost all regions of the country.

In an average-and-cap regulatory environment, refiners with multiple refineries might be able to optimize investment by reducing sulfur below the average at its larger refineries and minimizing capital investment at its smaller ones. In this manner, a company could employ the economics of size. TM&C studied a series of refinery size and location

combinations to determine a sulfur range that the smaller/higher sulfur refinery of a multiple plant system might average. We found that range to be 25 – 45 ppm.

In modeling the most likely approach refiners would take to meet a sulfur cap, TM&C found that refiners would spend capital to build additional storage and incur temporary increases in operating costs to handle turnarounds instead of building redundant systems. However, the approach could result in significant loss of supply, exceeding 5% in some regions. At a 40 ppm cap, the loss of supply would only be about 2 – 3%, and at 60 ppm the loss of supply would be negligible.

### **III. Study Design and Assumptions**

#### ***Regulatory Assumptions***

The study is premised on Tier 3 gasoline sulfur regulations being similar in structure to the current Tier 2 regulations. It further assumes that the EPA will establish a 10 ppm annual average with per gallon cap requirement for each facility that produces gasoline or each importing region for importers.

A sulfur credit program, identical to the one under the Tier 2 gasoline sulfur regulations, is also assumed to be in place. Facilities with an annual average level of less than 10 ppm will generate credits equal to the volume of gasoline produced or imported multiplied by the difference between 10 ppm and their annual sulfur level. Facilities with an annual average sulfur level greater than 10 ppm would create a deficit equal to the gasoline volume produced multiplied by the difference between their annual average sulfur level and 10 ppm. These latter facilities could comply with the required 10 ppm annual average by acquiring sufficient sulfur credits to reduce their annual average sulfur level to 10 ppm. Sulfur credits would have the units of ppm-gallons.

For this study, TM&C has assumed different per-gallon sulfur caps that no facility can exceed for any batch of gasoline produced or imported ranging from the current 80 ppm cap down to a minimum cap of 20 ppm.

#### ***Infrastructure Assessment***

The downstream cap on gasoline sulfur will affect how high sulfur materials can be handled in the distribution system. As pipelines transport fuels from the refiner or importer to market, they generate an interface mixture called transmix at the boundary layer between two different fuels. Because the sulfur level of jet fuel and heating oil can still be as high as 3,000 – 5,000 ppm, high sulfur transmix is usually produced. TM&C has noted that the sulfur level of transmix is typically in the range of 200 ppm – 800 ppm. A pipeline blending transmix using procedures currently approved by the EPA could raise the sulfur level of compliant gasoline by 4 ppm. A pipeline that is unable to blend off transmix into gasoline will sell the material to a transmix processor. With a very tight sulfur cap, the transmix processor could find that it would not be possible to produce a transmix gasoline product compliant with the regulations. How the EPA establishes downstream sulfur caps will significantly impact the compliance margin that the distribution system establishes to comply with the Tier 3 gasoline sulfur regulations. A very tight downstream sulfur cap could set a de facto sulfur cap at the refinery gate that is stricter than the regulatory cap. TM&C analyzed the potential for a de facto more strict

sulfur standard based on different applications of sulfur caps downstream of the refiner or importer.

## ***Literature Search***

TM&C conducted a literature search to identify any previous studies that quantified (at varying levels of per-gallon sulfur caps) the cost to manufacture gasoline and any impacts on the volume of gasoline that could be produced. We were unable to find any studies which specifically did this.

## ***Industry Survey***

The U.S. refining system is quite complex and each refinery is unique in both its capabilities and operating situation. Because of this uniqueness, each refinery will be impacted in different ways and have a variety of responses to proposed fuels regulations. The inherent nature of a per-gallon sulfur cap makes it very difficult to model refinery impacts and responses compared to annual average specifications and, as a result, we decided that a formal industry survey was required to perform this study.

TM&C split the survey into three parts (see questionnaire in Appendix B.)

- What was each participating refinery's actual performance in 2011, the last year with full data?
- What was the source of gasoline sulfur, and what processes were used to reduce sulfur?
- At different sulfur caps, how would the refinery achieve 10 ppm annual average sulfur; how would the refinery handle unit outages; and how much does the refinery anticipate investing to achieve 10 ppm annual average sulfur?

To answer the question of a refinery's actual performance, TM&C asked the refinery to provide us with the average sulfur level achieved in 2011 and to provide the percentage of gasoline produced within certain defined sulfur ranges. We used the sulfur distribution data to help us estimate how much gasoline production would be lost to the U.S. market at different sulfur caps.

## ***Modeling and Analysis***

TM&C maintains working models of most of the fuels refineries in the U.S. Utilizing this modeling platform, we investigated the investment and operating costs for refineries in all geographical and supply regions for the various sulfur cap cases. Our modeling work also allowed us to determine the following:

- Potential to utilize caps above 20 ppm by refiners with multiple refineries;
- Capital costs for storing high sulfur FCC gasoline during low-sulfur blendstock outages or FCC gasoline treater outages;
- The difference in operating costs and loss of production for FCC gasoline treater turnarounds at different sulfur caps; and
- The cost difference between U.S. markets and export markets if high sulfur gasoline is exported due to a low sulfur cap.

A very low sulfur cap could lead to supply problems in areas with limited supply options. Should a refinery suffer an outage of its FCC gasoline desulfurization unit, a very low sulfur cap would severely limit the amount of high sulfur FCC gasoline the refinery could blend during the outage. If the refinery is located in a region with limited optional supply, a supply disruption could result. TM&C has reviewed supply patterns to locate areas that could be affected.

A question that regulators face is whether a relaxed cap could be detrimental to emissions reductions, even at the ultra-low annual average sulfur level of 10 ppm. To evaluate the potential for damage to emissions control systems, TM&C performed a statistical analysis to determine the amount of gasoline that could be produced at different sulfur levels above 10 ppm if the majority of the gasoline produced averaged slightly less than 10 ppm, as would be expected.

## IV. Literature Review

TM&C conducted a literature search of publicly available studies and industry analyses which address the impacts and benefits of reducing sulfur in gasoline (see Appendix A for a complete list). This search found several studies that analyze the impacts of either proposed or considered regulations, but none that attempted to specifically quantify the costs and/or benefits of imposing per gallon sulfur caps in conjunction with an annual average sulfur limit. We did discover some information that was relevant to this study:

- The apparent perceived rationale behind reducing sulfur in gasoline and how the application and market acceptance of different engine technologies determines the sulfur impact on emissions; and
- How constraints written into the regulations or applied by the regulatory bodies can create de facto operational sulfur caps and allowable refinery sulfur averages that are significantly lower than the regulatory standard.

The literature sources reviewed indicated that three-way catalyst technology currently being used becomes more efficient at reducing emissions as the average sulfur level in gasoline is reduced.<sup>3 4 5</sup> There were no studies or research which tested reductions based on per-gallon sulfur caps. The literature also reported that catalyst systems have been developed that will recover from sulfur spikes.<sup>6 7</sup> Those analyses were performed by testing emissions at a base sulfur level, then testing the emissions at a significantly higher sulfur level, and then again testing the emissions at the base level. The recovery studies that TM&C found were old and performed at sulfur levels ten times greater than we would expect catalyst systems to encounter in a 10 ppm average environment. In those old studies, some catalyst systems were easily reversible, others were not. The reversibility was dependent on the catalytic system design.

There are certain engine-emission systems that require essentially no sulfur in gasoline to be effective. These include lean-burn engines with NOx traps and fuel cell vehicles, which both require sulfur levels below 10 ppm to be effective. These systems would be subject to efficiency loss or failure in a 10 ppm sulfur average environment even with

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<sup>3</sup> NESCAUM, Arthur Marin, *Benefits and Costs of Tier 3 Low Sulfur Gasoline Program*, January 2012

<sup>4</sup> NACAA, Nancy Kruger, *Cleaner Cars, Cleaner Fuel,, Cleaner Air: The Need for and Benefits of Tier 3 Vehicle and Fuel Regulations*, December 2011

<sup>5</sup> The International Council on Clean Transportation, Katherine O. Blumberg, Michael P. Walsh, Charlotte Pera, *Low Sulfur Gasoline and Diesel: The Key to Lower Vehicle Emissions*, May 2003

<sup>6</sup> IBID

<sup>7</sup> U.S. Environmental Protection Agency, *EPA Staff Paper on Gasoline Sulfur Issues* EPA 420-R-98-005), May 1, 1998

very strict sulfur caps. Our literature review included studies<sup>8</sup> which determined that these systems are highly unlikely to be employed in any meaningful way in the foreseeable future, if ever. Lean-burn engines in North America would be limited to stranded V-8 engine capital. Under new CAFÉ standards, manufacturers are highly unlikely to keep inefficient legacy technology. For fuel cell technology, gasoline in its current form would not be a preferred fuel.

The fungible gasoline distribution system will moderate any temporary sulfur spike in gasoline produced by a single refinery. In testimony before the California Air Resources Board, industry representatives described how the fungible California system maintained a relatively steady sulfur environment.<sup>9</sup> A similar fungible gasoline distribution system exists for most of the rest of the U.S.

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<sup>8</sup> Martec, *Technology Cost and Adoption Analysis: Impact of Ultra Low Sulfur Gasoline Standards*, April 9, 2010

<sup>9</sup> WSPA, Albie Hochhauser, *CARB Fuels Workshop Presentation*, March 23, 2007



## V. Survey Results

### ***Section A – 2011 Gasoline Batch Data***

The survey requested information for conventional gasoline/CBOB without ethanol, RBOB with ethanol and CARB gasoline with ethanol in the same manner as the properties are reported to the regulatory agencies. Responses to the survey were provided by 41 refineries producing 3,446 MBPD, or 44% of the 7,842 MBPD<sup>10</sup> refiner production of RFG and CARB with ethanol and conventional gasoline without ethanol. TM&C excludes the ethanol in conventional gasoline because sulfur in conventional gasoline is reported exclusive of ethanol, whereas sulfur in RBOB and CARB gasoline is reported including ethanol.

The average sulfur level for the combined CG/CBOB and RBOB was 30.7 ppm, slightly more than the 30 ppm annual average Federal regulatory limit, and TM&C noted that refiners were optimizing their operations by consuming sulfur credits. The average sulfur of conventional gasoline was slightly lower than the sulfur of reformulated gasoline, but this difference is not statistically significant. Survey responses for CARB gasoline averaged 6.8 ppm for 2011, much lower than the apparent regulatory limit. Refiners producing CARB gasoline informed TM&C that the California regulatory limits for CARB3 gasoline - 15 ppm average with a 20 ppm cap - are not the de facto limits. The calculations in the predictive model (used for ethanol blended gasoline) for NOx emissions limit the average sulfur in CARB 3 gasoline to essentially 10 ppm. Exported gasoline averaged 36.8 ppm sulfur with a range of 3 ppm – 137 ppm.

TM&C grouped refineries into different sulfur ranges based on their annual average sulfur and performed a distribution analysis. As shown in Table V-1, we found that the sulfur distribution followed a standard bell curve. Ninety to ninety-five percent of the gasoline was produced within three adjacent sulfur categories. The category representing the annual sulfur average contained 50% or more of the total volume with about 20% - 25% on either side of the central category. At the fringes of the range for allowed sulfur, the bell curve was truncated and the representative category represented 75% to 80% of the total. We find this distribution analysis important in predicting how refineries will produce gasoline under a 10 ppm annual average requirement.

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<sup>10</sup> The value of 7,842 MBPD for refinery production of RFG & CARB (with ethanol) and conventional gasoline (without ethanol) is calculated from 2011 EIA data as follows:

Finished motor gasoline supplied	8,753 MBPD
Net gasoline imports	(286) MBPD
Ethanol in conventional gasoline	(533) MBPD
Adjustments/stock changes	(92) MBPD
Net refinery production	7,842 MBPD

<b>Table V-1</b>					
<b>Batch Sulfur Distribution for 2011 Gasoline Batches</b>					
	Refineries with Annual Average Sulfur Range, ppm				
	<10	10-19.9	20-29.9	30-44.9	≥45
Volume, MBPD	214	645	1,130	1,006	364
Volume, %	6	19	34	30	11
Average sulfur, ppm	5.6	14.4	24.6	37.0	57.6
Volume Weighted Sulfur Distribution of Gasoline Batches, % of Volume Reported					
<5 ppm	52	1	1		
5-9.9 ppm	29	23	3	1	
10-19.9 ppm	18	54	24	8	2
20-29.9 ppm	1	19	49	23	4
30-49.9 ppm	<1	2	21	50	18
50-79.9 ppm		<1	2	18	76

PADD V refineries producing both Federal and CARB 3 gasoline could be split into two separate categories: producers of CARB3 gasoline with a 10 ppm limit, and producers of conventional gasoline with a 30 ppm annual average limit. TM&C split the refineries in this manner for the analysis of distribution by sulfur category. CARB3 gasoline produced in PADD V is included in the <10 ppm category.

## ***Section B – Typical Process Operation for 2011***

The average sulfur content of the FCC gasoline among our survey participants was 61 ppm with a range of 4-139 ppm. Sulfur by type of processing is presented in Table V-2. Refineries with both an FCC feed pre-treater and an FCC gasoline post treater had the lowest average sulfur level at 35 ppm.

<b>Table V-2</b>			
<b>FCC Gasoline Treatment by Process</b>			
Process	Number	Average Sulfur ppm	Sulfur Range ppm
Pre-treater without Post Treater	13	58	6-134
Pre-treater with Post Treater	9	35	4-139
Post Treater without Pre-treater	12	70	27-121
No Treatment	3	109	100-112
No FCC Gasoline	4		

The U.S. average distribution of the FCC gasoline sulfur is presented in Table V-3. This distribution shows that 61% of the FCC gasoline used for blending had a sulfur level of 50 ppm or higher.

<b>Table V-3 FCC Gasoline Sulfur Distribution</b>	
<b>Sulfur Range, ppm</b>	<b>Percent of FCC Gasoline</b>
<20	15
20-49.9	24
50-69.9	28
70-89.9	14
90-109.9	5
≥110	14

Thirty of the 41 survey refineries reported storage capacity for unhydrotreated FCC gasoline with a shell capacity equal to 4.6 days of production. Twenty-two refineries reported storage capacity for hydrotreated FCC gasoline with a shell capacity equal to 5.5 days of production. Of the refineries reported above, 16 had capacity for both unhydrotreated and hydrotreated gasoline.

Refiners reported purchased blendstocks as shown in Table V-4. Much of the material reported as “other” was butane. Refiners noted that they would have to treat purchased streams to remove sulfur, especially natural gasoline. Opportunistic purchases would have to be treated at the low sulfur caps.

<b>Table V-4 Purchased Blendstocks</b>		
<b>Blendstock</b>	<b>Volume MBPD</b>	<b>Average Sulfur ppm</b>
Natural gasoline	86.8	62
Reformate	7.7	0
Alkylate	9.0	11
Raffinate	20.6	22
Other	25.5	9

Four refineries reported that they were limited by the 80 ppm sulfur cap and could have produced an additional 5 MBPD of domestic gasoline without the sulfur cap.

### ***Section C – Future Operations with Gasoline Sulfur Average of 10 ppm with Alternative Caps***

Some U.S. refiners have already included design features in their FCC gasoline treaters in anticipation of a lower average sulfur environment. Although, the operating severity which will be required is unproven, these modifications could allow this small group of refiners to meet the 10 ppm average sulfur specification through more moderate upgrades such as catalyst changes, or more severe operation with more frequent turnarounds. Refiners that have not pre-invested in anticipation of lower sulfur in

gasoline specifications will have to change their approach to reducing the sulfur in the FCC gasoline, if the sulfur cap in addition to the sulfur average is lowered.

Table V-5 outlines the range of options we have identified for U.S. refiners seeking to comply with more restrictive gasoline sulfur caps. As the sulfur cap becomes more restrictive, many refiners with only pre-treating will have to add post treating, refiners with partial post-treating will move toward 100% post treating, refiners will reduce the endpoint of FCC gasoline and increase the treatment of other sulfur bearing blendstocks.

<b>Table V-5</b> <b>Probable Activities for Making 10 ppm Sulfur Gasoline</b>					
	Sulfur Cap, ppm				
	80	60	40	30	20
Pre-treating of FCC feed only	++	+	+	-	-
Combined pre and 100% post treating	-	-	+	++	++
100% post-treating	-	++	++	++	++
Reduce end point of FCC gasoline	-	-	+	++	++
Treat other blendstocks	-	-	+	++	++
Note: For each row, cells are color-coded in increasing color gradients to show the progression of change.					

When refiners experience an unplanned reduction in low sulfur blendstocks, they will have to adjust their operation to balance the loss of the sulfur sink without preplanning. At all sulfur caps, the refiner's first choice is to store high sulfur components and increase the severity of the FCC gasoline hydrotreater. Refiners will progressively move from the easiest option to the most difficult as the sulfur cap is reduced. As shown in Table V-6, as the sulfur cap is tightened, refiners would lose the ability to easily manage the sulfur balance by temporarily storing some high sulfur components, purchasing low sulfur blendstocks, or adjusting the sulfur of feedstocks, if possible. Instead, refiners would have to respond to the unplanned loss of low sulfur blendstocks by: getting rid of high sulfur components and idling or significantly reducing the feed rate of the FCC.

The ability of refiners to plan eases the impact of the loss of low sulfur blendstocks as refiners continue to produce gasoline under different sulfur caps. This difference is shown in a comparison between Table V-6 and V-7. With an unplanned loss of low sulfur blendstocks (Table V-6), refiners' most available actions are to store high sulfur components and increase the severity of the FCC pre- and post-treaters. Balancing inventory through the purchase and sale of low and high sulfur blending components is more difficult because reaction time to an outage is much shorter. For a planned loss of low sulfur blendstocks, refiners are able to balance their options, and Table V-7 shows a more uniform approach of using the options available. Purchasing low sulfur components can be an expensive option, especially if it is done in the form of changing

the crude slate to use lower sulfur crudes. Tables V-6 and V-7 do show that as the sulfur cap becomes more stringent, more options, especially the more expensive options such as cutting feed rate, must be employed; this raises the cost of compliance with the sulfur regulations and limits gasoline supply.

<b>Table V-6</b> <b>Making 10 ppm Sulfur Gasoline</b> <b>with an Unplanned Loss of Low Sulfur Blendstocks</b>					
	Sulfur Cap, ppm				
	80	60	40	30	20
Increase severity of FCC pre-treater or post treater	++	++	++	++	++
Idle or significantly reduce feed rate to FCC	+	++	++	+++	+++
Reduce end-point of FCC gasoline	+	+	+	+	+
Sell high-sulfur components and/or export high-sulfur gasoline	-	+	+	+	+
Purchase low sulfur components	+	+	-	-	-
Store high sulfur components	+++	+++	++++	+++	+++
Other (primarily crude rate reduction)	+	+	+	+	+
Note: Cells are color-coded to show intensity level of the activity.					

<b>Table V-7</b> <b>Making 10 ppm Sulfur Gasoline</b> <b>with a Planned Loss of Low Sulfur Blendstocks</b>					
	Sulfur Cap, ppm				
	80	60	40	30	20
Increase severity of FCC pre-treater or post treater	+	+	++	++	++
Idle or significantly reduce feed rate to FCC	+	++	+++	+++	+++
Reduce end-point of FCC gasoline	+	+	+	+	+
Sell high-sulfur components and/or export high-sulfur gasoline	+	++	++	++	++
Purchase low sulfur components	+	+	+	+	+
Store high sulfur components	+	+	++	++	++
Other (primarily crude rate reduction)	-	+	+	+	+
Note: Cells are color-coded to show intensity level of the activity.					

As shown in Table V-8, if refiners were to experience an outage in the unit or units that reduce the sulfur in FCC gasoline, they would have to idle or significantly reduce the feed rate to the FCC (the primary option), store high sulfur FCC gasoline or sell it either as a blendstock or high sulfur gasoline. As the sulfur cap becomes more stringent, the actions mentioned above become more necessary, decreasing domestic supply. Increasing the severity of the unaffected FCC pre or post treater is a limited option

because many refiners have only one treater; thus, this option is shown not being heavily used in the overall analysis.

<b>Table V-8</b> <b>Making 10 ppm Sulfur Gasoline</b> <b>with a Planned or Unplanned Outage of the FCC Pre-treater or Post Treater</b>					
	Sulfur Cap, ppm				
	80	60	40	30	20
Increase severity of the unaffected FCC pre-treater or post treater, if applicable (limited option)	-	+	+	+	+
Idle or significantly reduce feed rate to FCC	+++	++++	++++	++++	++++
Reduce end-point of FCC gasoline	+	+	+	++	++
Sell high-sulfur components and/or export high-sulfur gasoline	+	+	+	++	++
Purchase low sulfur components	-	-	-	+	+
Store high sulfur components	+	++	++	+++	+++
Other (primarily crude rate reduction)	-	+	+	+	+
Note: Cells are color-coded to show intensity level of the activity.					

Based on our analysis, we believe that refiners would need a sulfur cap of at least 40 – 50 ppm to be able to optimize their gasoline production during periods of higher sulfur in their gasoline pool resulting from loss of low sulfur blendstocks or loss of FCC gasoline desulfurization. Our analysis also finds that refiners would change their crude slates, manage intermediate products, and exchange or sell high sulfur gasoline blendstocks to respond to those situations.

<b>Table V-9</b> <b>Additional Storage Capacity Required at Different Sulfur Caps</b>					
	Sulfur Cap, ppm				
	80	60	40	30	20
Change in Storage Requirement					
Alkylate	-	-	++	++	++
Light St Run Naphtha	-	+	+	+	+
Light Coker Naphtha	-	-	+	+	+
Unhydrotreated FCC Gasoline	-	++	++	+++	+++
Hydrotreated FCC Gasoline	-	++	++++	++++	++++
Investment					
Calculated Investment, \$billion		\$0.5	\$1.1	\$1.2	\$1.2
Note: Cells are color-coded to show intensity level of the activity.					

As shown in Table V-9, as the sulfur cap is lowered, refiners would have to add additional storage capacity for gasoline blendstocks. The largest increase takes place at a sulfur cap of 40 ppm reflecting increases in storage of alkylate, light coker naphtha and hydrotreated FCC gasoline. At a sulfur cap of 30 ppm, refiners would increase the storage capacity of unhydrotreated FCC gasoline. The calculated investment for the storage capacity doubled, from \$0.5 billion at 60 ppm to \$1.1 billion at 40 ppm.

As the sulfur cap is reduced, refiners will experience difficulty maintaining their gasoline production during turnarounds of units for reducing sulfur in gasoline. Based on six pre-determined survey responses ranging from “no loss of production” to “loss of production exceeding 50%,” we calculated an annual average gasoline supply loss for the survey respondents and extrapolated it to cover the entire U.S. refining industry. This calculated annual average supply loss, by sulfur cap, is shown in Table V-10: the volume increases ten-fold to approximately 130 MBPD as sulfur cap is reduced from 80 to 20 ppm.

Table V-10 Estimated U.S. Gasoline Supply Loss at Different Sulfur Caps					
	Sulfur Cap, ppm				
	80	60	40	30	20
Supply Loss, MBPD	12	43	63	108	129
Note: Cells are color-coded to show intensity level of the activity.					

A low sulfur cap could be particularly impactful on gasoline supplies in some isolated geographic regions during downtimes of key refinery equipment units. These regions are dependent on supply from just two or three refineries and have limited ability to import additional product by pipeline. We have determined that, under a 20 ppm sulfur cap regulation, when key gasoline units are down at the largest of the refineries serving these areas, gasoline supplies could be severely impacted. Under these circumstances, these regions could lose between 25% and 50% of their gasoline supplies. To maintain supply would require the industry to utilize temporary, non-traditional means of gasoline procurement.

Refiners will have to spend additional capital to meet the 10 ppm annual average as the sulfur cap is reduced. Based on six pre-determined survey responses ranging from “no additional cost” to “greater than \$250 million,” we have calculated the additional capital costs for the entire U.S. refining industry to meet the different sulfur caps in a 10 ppm average environment, and have presented these additional costs in Table V-11.

<b>Table V-11</b> <b>Estimated Additional Compliance Capital Costs</b> <b>for the Different Sulfur Caps</b>					
	Sulfur Cap, ppm				
	80	60	40	30	20
Additional Capital Cost, \$ million		1,768	3,390	5,533	6,090
Note: Cells are color-coded to show intensity level of the activity.					

## Summary

During 2011, refiners meeting the Tier 2 gasoline sulfur standard averaged slightly above 30 ppm because they were using sulfur credits before they expired. Additionally, we found no statistically significant difference in the sulfur content of reformulated and conventional gasoline. Because of the design of the predictive model, the de facto standard for CARB gasoline is already 10 ppm.

At each of the different sulfur ranges TM&C surveyed, the sulfur distribution followed a standard bell curve. Ninety to ninety-five percent of the gasoline was produced within three adjacent sulfur categories. The category encompassing the refinery's annual sulfur average contained 50% or more of the total volume with about 20% - 25% on either side of the central category.

As expected, to average 10 ppm sulfur in finished gasoline, refiners will have to reduce the sulfur of their FCC gasoline, which averaged 61 ppm in 2011. They must also reduce the sulfur of other blendstocks, including light straight run gasoline, natural gasoline, and some butane streams.

As the sulfur cap becomes more restrictive from the current 80 ppm, refiners will have to increase the amount of combined pre and post treating, reduce the endpoint of FCC gasoline, and increase the treatment of other sulfur bearing blendstocks. To cope with the loss of low sulfur blendstocks, whether planned or unplanned, as the sulfur cap is tightened, refiners will have to consider an increased number of responses. Among these, they will probably increasingly idle or significantly reduce the feed rate of the FCC, reducing gasoline production.

During an outage of the FCC pre-treater or post-treater, refiners would primarily idle or significantly reduce the feed rate to the FCCU and store high sulfur components. As the sulfur cap is reduced, refiners would progressively need higher storage capacity; capital costs for storage double from \$0.5 to \$1.1 billion as the sulfur cap decreases from 60 ppm to 40 ppm.

During turnarounds of key units, estimated supply loss will increase as the sulfur cap is decreased; the increase is ten-fold (almost 130 MBD) as the cap is reduced from 80 ppm



to 20 ppm. Based on survey responses we have estimated the annual average supply loss for the U.S. at the different sulfur caps:

Sulfur Cap ppm	Incremental Supply loss MBPD	Total Supply Loss MBPD
80		12
60	31	43
40	20	63
30	45	108
20	21	129

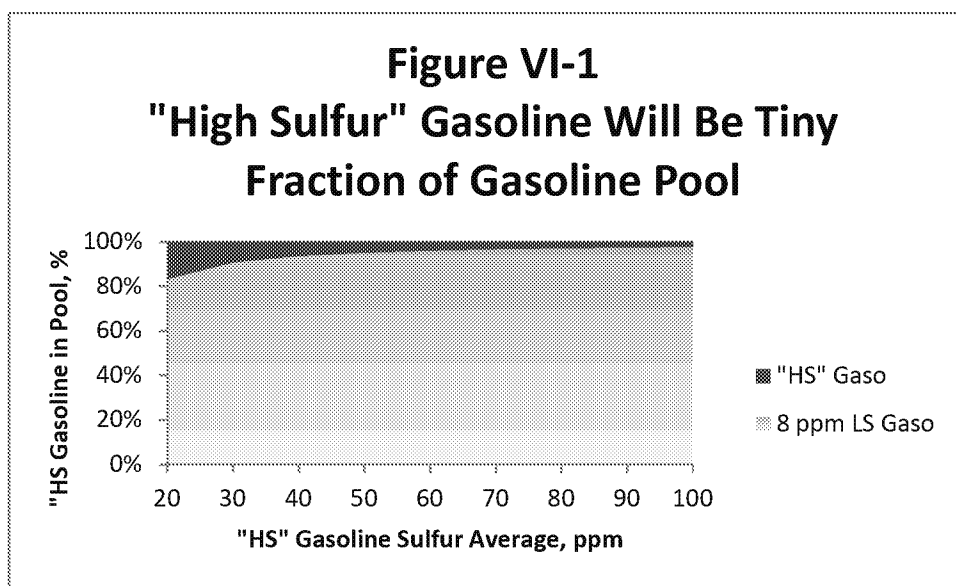
Finally, from survey responses, TM&C has calculated the additional cost for the U.S. industry to comply with a 10 ppm annual average sulfur limit based on the sulfur cap as follows:

Sulfur Cap Ppm	Incremental Capital Cost \$ million	Cumulative Capital Cost \$ million
80		0
60	1,768	1,768
40	1,622	3,390
30	2,143	5,533
20	557	6,090

## VI. Modeling and Analysis

### Statistical Analysis

TM&C finds that at an annual average sulfur maximum of 10 ppm for the U.S. gasoline pool, very few gasoline batches with a sulfur level exceeding 30 ppm would be produced. As shown in Figure VI-1, if most of the gasoline produced averages 8 ppm, only a small fraction of the gasoline pool can average a higher sulfur level. For example, if all of the remaining gasoline were to average 30 ppm, it could comprise only 9% of the gasoline pool; whereas, if the remaining high sulfur gasoline were to average 60 ppm, it could comprise only 4% of the gasoline pool.



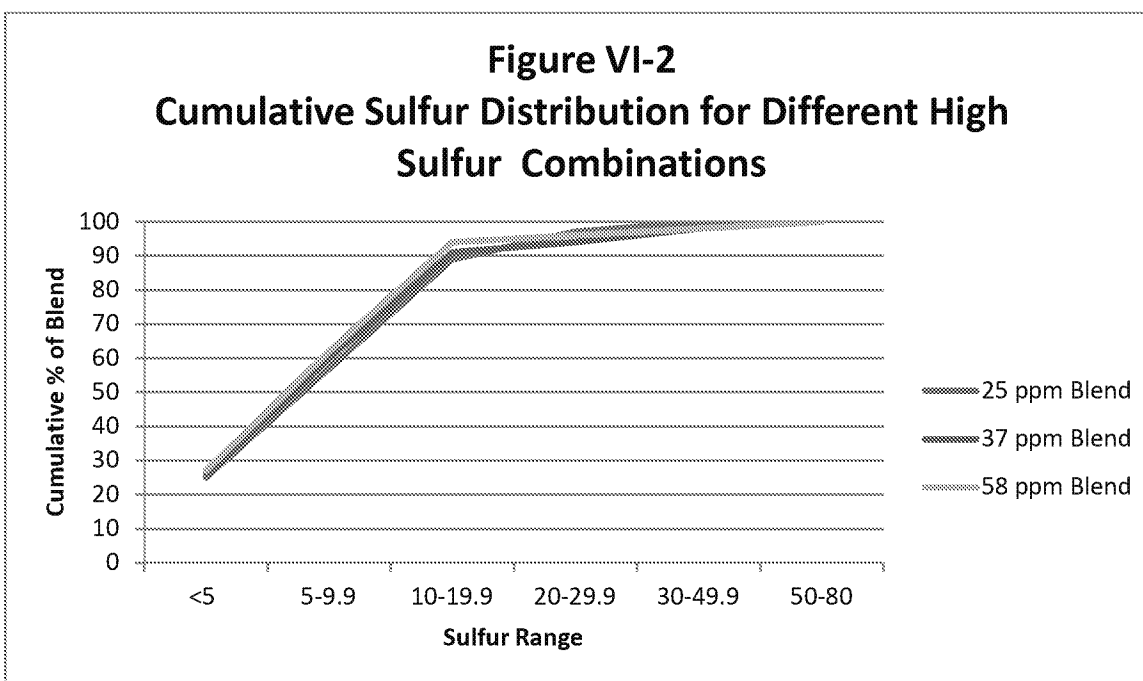
Performing a statistical analysis of the gasoline batches from the survey, we determined that a general distribution of sulfur in gasoline batches averaging 8 ppm sulfur would have the general composition shown in Table VI-1.

Table VI-1 Sulfur Distribution for 8 ppm Average Base	
Sulfur Range	Percent of Batches
<5 ppm	28
5 – 9.9 ppm	36
10 – 19.9 ppm	33
20 – 29.9 ppm	2
30 – 49.9 ppm	1
50 – 80 ppm	0

Referring back to Table V-1, TM&C obtained, from the refinery survey, typical sulfur distributions for the refineries whose gasoline averaged about: 25 ppm, 37 ppm, and 58 ppm. Blending the sulfur distribution of each of the higher sulfur gasoline averages with the sulfur distribution of the 8 ppm sulfur average shown in Table VI-1, we determined the potential sulfur distributions shown in Table VI-2. In Table VI-2, we proportionally blended the 8 ppm sulfur base gasoline with the higher sulfur gasoline at the percentage the higher sulfur could be produced in a 10 ppm annual average sulfur environment. In Figure VI-2, we visually demonstrate the sulfur distribution probability for these three blend combinations.

Table VI-2 Sulfur Distributions for Different High Sulfur Combinations							
	8 ppm Base Distribution	25 ppm Blend Distributions		37 ppm Blend Distributions		58 ppm Blend Distributions	
		25 ppm	Total Pool	37 ppm	Total Pool	58 ppm	Total Pool
Fraction		0.118		0.069		0.040	
Sulfur Range							
<5 ppm	28%	1%	25%		26%		27%
5-9.9 ppm	36%	3%	32%	1%	34%		35%
10-19.9 ppm	33%	24%	32%	8%	31%	2%	32%
20-29.9 ppm	2%	49%	8%	23%	3%	4%	2%
30-49.9 ppm	1%	21%	3%	50%	4%	18%	2%
50-80 ppm		2%	0%	18%	1%	76%	3%

Note: Due to rounding, columns may not total to exactly 100%.



Based on the distributions shown in Table VI-2 and Figure VI-2, TM&C would expect that there would be almost no batches produced above 50 ppm with an annual sulfur average limit of 10 ppm. The probability of the “high sulfur” gasoline averaging above 30-40 ppm is quite low. We place the probability of the amount of gasoline exceeding 50 ppm at no more than 2%, and would expect a distribution closer to no more than 1%.

Thus, we find that a regulation requiring the annual average of the U.S. gasoline pool to not exceed 10 ppm will establish a practical operating per-gallon cap for refiners of 30 - 50 ppm.

## ***Investment Optimization***

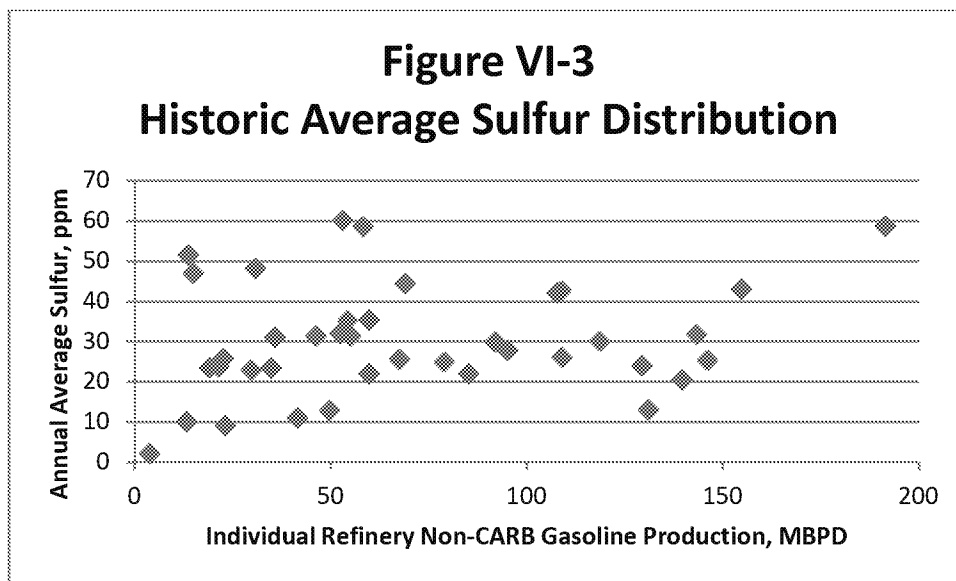
One might postulate that the large refining companies might choose to optimize their investments in sulfur reduction by investing in their larger refineries and allowing smaller refineries to produce gasoline at higher sulfur levels. If too many small refineries producing gasoline at the higher sulfur levels were in the same area, a region might see elevated sulfur levels. TM&C evaluated this possibility and concluded that this scenario is not likely for the following reasons:

- As shown in Table VI-3, at a 10 ppm annual average, gasoline production averaging above 50 ppm, even by a large refiner optimizing its investment, is not likely; and
- As shown in Figure VI-2, we have not seen this type of concentrated strategic optimization under the current 30 ppm regulations.

As shown in Table VI-3, it is possible for a large refiner producing 750 MBPD of gasoline, almost 10% of the gasoline pool, to concentrate sulfur in the gasoline produced at one small refinery to a level approaching 60 ppm by producing 8 ppm sulfur gasoline at all the rest of its refineries. However, that capability quickly drops to no more than 45 ppm as the refinery size grows slightly. Thus, TM&C concludes that it is improbable for a large refiner optimizing its investment to have any refinery with an annual average sulfur level exceeding the 25 – 45 ppm range.

<b>Table VI-3</b> <b>Potential Maximum Average Sulfur at One Refinery</b> <b>for Large Refiner Optimizing Investment</b>					
Company Non-CARB Gasoline Production		Individual Refinery Producing Higher Sulfur Gasoline			
Total MBPD	Averaging 8 ppm MBPD	Location	Crude Capacity MBPD	Gasoline Make MBPD	Potential Avg. Sulfur, ppm
750	721	PADD 4	60	29	61
750	710	PADD 2	80	40	45
750	708	PADD 3	100	42	44
500	471	PADD 4	60	29	43
500	460	PADD 2	80	40	33
500	458	PADD 3	100	42	32
250	221	PADD 4	60	29	26
250	210	PADD 2	80	40	20
250	208	PADD 3	100	42	20

TM&C's review of the sulfur level by refinery size shown in Figure VI-3 confirmed our conclusion. When we reviewed the distribution of the annual average sulfur by refinery reported in the survey, we could not find a pattern for the average sulfur in non-CARB gasoline based on refinery size. Figure VI-3 shows this random distribution for the 2011 average sulfur reported by the refineries in the survey.



## Supply and Economic Ramifications for Turnarounds

Refiners indicated in response to our survey that during a turnaround of FCC gasoline hydrotreating units, they will adjust crude slates as possible to reduce sulfur in crude and balance their operations by storing or selling high sulfur blendstocks and/or purchasing low sulfur blendstocks. We have attempted to model this strategy of replacing higher sulfur crudes with low sulfur crudes and storing any high sulfur gasoline that could not be blended for future blending once the hydrotreater was returned to service.

TM&C ran cases with sulfur caps of 20 ppm, 40 ppm, and 60 ppm. Our modeling resulted in three cost allocations: (1) the change in gross margin for processing different, non-optimum crude oils, (2) the annualized cost for gasoline storage, and (3) the working capital required to maintain inventory for the period of time necessary to blend off the high sulfur gasoline blendstock.

As shown in Table VI-4, we found that the lower the sulfur cap, the higher the cost. Based on the way the study was designed, the resulting cost curve was fairly linear. The gross margin reduction due to changing the crude slate was a major component of the cost.

<b>Table VI-4</b> <b>Costs to Reduce Gasoline Sulfur at Different Sulfur Caps</b> <b>During FCC Gasoline Treater Turnaround,</b> <b>Non-CARB Gasoline</b>			
	Sulfur Cap, ppm		
	60	40	20
Gasoline storage construction cost, \$ million	720	1,490	2,130
Annualized cost during turnaround, \$ million	480	660	880
Breakdown of Annualized Cost			
Gasoline storage	27%	39%	41%
Working capital	1%	2%	10%
Gross margin reduction	72%	59%	49%

TM&C's modeling, which allowed an optimum response to a planned turnaround, did show that in some regions, with few refineries serving a particular area, that the short-term loss of gasoline supply could well exceed 5% for a refinery turnaround at a sulfur cap of 20 ppm. In TM&C's modeling, the supply loss at 40 ppm was about 2 – 3%, while at 60 ppm; the supply loss was generally less than 1%. We find a 5% supply loss significant. We would not expect to see any major supply disruption in the large refining centers or areas well supplied by outside sources unless several large refineries went into turnaround at the same time.

## ***How Regulations Are Implemented***

Where and how the EPA sets the standard for a 10 ppm average gasoline sulfur will set the de facto standard for refiners. When the EPA established the Tier 2 Gasoline Sulfur Standards, the EPA set the standard at the refinery with a 30 ppm annual average and an 80 ppm per-gallon cap. The EPA set the downstream standard as 95 ppm, using the refinery per-gallon cap and test reproducibility. Because of the way the Tier 2 regulations were written, the downstream distribution industry has been able to set its specified maximum for receipt of gasoline from refineries at the 80 ppm per-cap maximum.

The California Air Resources Board regulations for CARB3 gasoline allow an annual average of 15 ppm with a cap of 20 ppm or a flat limit of 20 ppm; however, refiners are not able to use these CARB3 limits. The representation of NO<sub>x</sub> reduction based on sulfur levels in the CARB3 predictive model for CARBOB limits sulfur to a de facto standard of about 10 ppm. Thus, survey responses from refineries producing CARB3 gasoline indicated that the average sulfur level for CARB3 gasoline was about 7 ppm.

When the EPA established the sulfur limit for motor vehicle, non-road, locomotive and marine (MVNRLM) diesel, the EPA set the limit as a 15 ppm cap at the point of delivery to the ultimate consumer with a testing allowance of only 2 ppm. Based on this restriction, pipelines set the maximum for delivery at or below 10 ppm. In actual operation, refineries have been averaging in the 5 – 8 ppm range.

Pipelines and transmix processors fear that they will not have a sulfur window sufficiently wide to allow them to blend or process transmix into gasoline. Blending transmix at 0.25%, the rate previously allowed in the regulations, could raise the sulfur in gasoline by 4 ppm. Transmix processors could also expect to see the sulfur level of their transmix gasoline product exceeding 20-30 ppm.

The proposed Tier 3 regulations should provide similar flexibility as the Tier 2 gasoline sulfur standards, including a separate downstream standard. EPA should also not impose a stringent cap that would effectively force an average sulfur limit below the proposed standard.

## ***Summary***

Based on our statistical analysis, TM&C has determined that at a 10 ppm annual sulfur average for the U.S. gasoline supply, very little high sulfur gasoline would reach the consumer. We would not expect refiners to produce more than 1% of the gasoline pool exceeding 50 ppm sulfur, nor more than 3 – 4% of the gasoline pool exceeding 30 ppm.

Large refiners optimizing their systems by allowing one refinery to produce higher sulfur gasoline still do not have the capability of producing super high sulfur gasoline at that one refinery. Based on the size of refineries the large refiners might own, we expect the range of sulfur at a refinery averaging above the 10 ppm standard to be in the range of no more than 25 – 45 ppm sulfur. Our statistical analysis predicted these results and the 2011 survey results confirmed them.

In modeling the most likely approach refiners would take to meet a sulfur cap, we found two key implications: capital cost required to build storage and temporary operating cost to handle turnarounds instead of building redundant systems. Furthermore, this could result in significant loss of supply, exceeding 5% in some regions if the sulfur cap is 20 ppm. At a 40 ppm cap, the supply loss would decrease to 2 – 3%, and at 60 ppm the loss of supply would be less than 1%.

How the Tier 3 gasoline regulations are implemented will set the operational limit on gasoline sulfur. The proposed Tier 3 regulations should provide similar flexibility as the Tier 2 gasoline sulfur standards, including a separate downstream standard. EPA should also not impose a stringent cap that would effectively force an average sulfur limit below the proposed standard.



## VII. Conclusions

**Limited to No Benefits for Restrictive Sulfur Caps in a 10 ppm Annual Average Environment.** Vehicle technologies (e.g., lean Gasoline Direct Injection with a NOx trap) that require stringent per-gallon gasoline sulfur caps to operate effectively are not projected to achieve any significant U.S. market penetration. As a result, there are very limited, if any, emissions benefits derived from restrictive per-gallon sulfur caps in a 10 ppm annual average regulatory environment.

**Refiners Will Not Be Able to Produce Significant Volumes of High Sulfur Gasoline in a 10 ppm Annual Average Environment.**

TM&C performed a statistical analysis of the amount of gasoline that could be produced at different sulfur averages above 10 ppm if the rest of the gasoline pool was being produced at an 8 ppm average. At an average of 25 ppm, the higher sulfur gasoline could only be 12% of the gasoline pool, and the amount of gasoline averaging above 30 ppm would only be about 3%. At an average of 37 ppm, the higher sulfur gasoline could only be 7% of the gasoline pool, and the amount of gasoline exceeding 30 ppm would only be about 5% of the pool. At an average of 58 ppm, the higher sulfur gasoline would only be 4% of the pool, and the amount of gasoline averaging above 30 ppm would still only be about 5% of the pool. We conclude that the probable level of gasoline exceeding 50 ppm in the pool is no greater than 1%.

Performing a statistical analysis at a 10 ppm sulfur annual average, it was also determined that it would be difficult for a company with multiple refineries to produce very high sulfur gasoline at its smallest refinery. When studying the potential for a refiner with non-CARB gasoline production ranging from 250 MBPD to 750 MBPD from a multiple refinery system, it was found that the probable average sulfur range would be 25 – 45 ppm for the highest sulfur small refinery in that refiner's system.

**Loss of Gasoline Production (up to 10X) during Turnarounds Increases with the Tightening of the Sulfur Cap.**

TM&C has determined that refiners would experience greater degrees of difficulty to produce on spec gasoline during turnarounds at sulfur cap levels below the current 80 ppm. We also calculated potential loss of gasoline supply at different sulfur caps. As shown in Table VII-1, we note that supply loss will increase ten-fold to approximately 130 MBD as the cap is reduced from 80 ppm to 20 ppm.

Table VII-1 Loss of Production During Turnarounds at Different Sulfur Caps	
Sulfur Cap ppm	Lost Production MBPD
80	12
60	43
40	63
30	108
20	129

TM&C's modeling indicated that, during FCC gasoline treater turnarounds, short-term gasoline supply in regions with limited supply options could be hampered. We optimized our models to maximize gasoline production during the FCC gasoline treater turnarounds by changing crude slates to minimize sulfur and allowing high sulfur FCC gasoline to be stored for blending later. On average, in some regions, at a 20 ppm sulfur cap, the loss of gasoline supply could well exceed 5%; at a 40 ppm sulfur cap, the loss of supply was reduced to 2 – 3%; while at a 60 ppm sulfur cap, the supply loss was generally less than 1%. We find a 5% supply loss significant.

Our analysis concludes that refiners would need a sulfur cap of at least 40 – 50 ppm to keep from losing significant gasoline production during periods of higher sulfur in their gasoline pool resulting from loss of low sulfur blendstocks or loss of FCC gasoline desulfurization.

Those regions in the U.S. that receive gasoline supplies from a limited number of refineries can expect to see severe supply disruptions when key gasoline units are down at the largest of refineries under a 20 ppm sulfur cap regulation. Gasoline supply losses could range between 25% and 50% in isolated regions.

**Refiners' Capital and Operating Costs Will Increase as the Sulfur Cap is Reduced.**

TM&C has calculated that the cost of reducing sulfur to meet the Tier 3 Gasoline Sulfur Standards will increase as the sulfur cap is reduced. An optimized study, based on minimizing initial capital costs, accepting higher operating costs at optimized operating conditions, and ultimately blending all high sulfur blendstocks generated, resulted in capital cost estimates ranging from approximately \$2 billion to over \$6 billion and annual operating costs estimated at \$900 million for a 20 ppm cap. These costs are in addition to those required to meet a 10 ppm annual average limit.

**How Regulations Are Drafted Can Set More-Stringent De Facto Standards.**

How the Tier 3 gasoline regulations are implemented will set the operational limit on gasoline sulfur. The proposed Tier 3 regulations should provide similar flexibility as the Tier 2 gasoline sulfur standards, including a separate downstream standard. EPA should also not impose a stringent cap that would effectively force an average sulfur limit below the proposed standard.

**Thus, TM&C concludes that there are very limited to no benefits for more restrictive sulfur caps in gasoline. Reducing the sulfur cap from the current 80 ppm level will increase gasoline cost, potentially increase loss in gasoline production ten-fold to 130 MBPD, and will have negligible, if any, accompanying emissions benefits.**

## VIII. Appendix A - Literature Reviewed

Emissions Control Technology Association  
Economic Analysis of the Implications of Implementing EPA's Tier 3 Rules  
June 14, 2012

Baker & O'Brien  
REFINING ECONOMICS OF A NATIONAL LOW SULFUR, LOW RVP GASOLINE  
STANDARD  
Original Report: July 2011; Addendum: March 2012

JATOP Website  
Contains information and several presentations regarding the impacts of cleaner fuels in  
Japan  
March 2012

NESCAUM  
Benefits and Costs of Tier 3 Low Sulfur Gasoline Program  
January 2012

NACAA  
Cleaner Cars, Cleaner Fuel, Cleaner Air: The Need for and Benefits of Tier 3 Vehicle  
and Fuel Regulations  
December 2011

API Letter to EPA  
November 11, 2011

MathPro, Inc.  
REFINING ECONOMICS OF A NATIONAL LOW SULFUR, LOW RVP GASOLINE  
STANDARD  
October 25, 2011

California Environmental Protection Agency: Air Resources Board  
Proposed 2011 Amendments to Phase 3 California Reformulated Gasoline Regulations  
August 21, 2011

MECA  
Sulfur Impacts on Advanced Emission Control Technologies for Gasoline Engines  
May 2011

Martec  
Technology Cost and Adoption Analysis: Impact of Ultra-Low Sulfur Gasoline Standards  
April 9, 2010

American Automobile Manufacturers

National Clean Gasoline: An Investigation of Costs and Benefits  
June 2009

Asian Development Bank Consulting  
A Road Map for Cleaner Fuels and Vehicles in Asia  
November 2008

WSPA  
*CARB Fuels Workshop*, Presentation by Albie Hochhauser  
March 23, 2007

WSPA  
*CARB Fuels Workshop*, Presentation by James P. Uihlein  
January 26, 2007

CONCAWE  
The impact of reducing sulfur to 10 ppm max in European automotive fuels: an update  
August 2005

JCAP Website  
Contains information and several presentations regarding the impacts of cleaner fuels in Japan  
2005

The International Council on Clean Transportation  
LOW-SULFUR GASOLINE & DIESEL: THE KEY TO LOWER VEHICLE EMISSIONS  
May 2003

Purvin & Gertz  
ULS GASOLINE AND DIESEL REFINING STUDY  
November 17, 2000

CONCAWE  
Impact of a 10 ppm sulfur specification for transport fuels on the EU refining industry  
October 2000

CONCAWE  
Consultation on the need to reduce the sulfur content of petrol and diesel fuels below 50 parts per million  
July 2000

Mustang Engineers  
IMPACT ON FUTURE REFINERY OF PRODUCING ULTRA LOW SULFUR GASOLINE  
2000

CONCAWE

EU oil refining industry costs of changing gasoline and diesel fuel characteristics  
April 1999

EPA

Staff Paper on Gasoline Sulfur Issues  
May 1, 1998

## **IX. Appendix B – Survey Questionnaire**

**AMERICAN PETROLEUM INSTITUTE  
REDUCED SULFUR CAP QUESTIONNAIRE  
INDIVIDUAL REFINERY SURVEY**

**INSTRUCTIONS**

The questionnaire, which should be completed for each refinery location, is comprised of three sections. Section A covers EPA Batch Gasoline and Export Gasoline information. We would like you to send us your complete 2011 EPA Batch Report (RFG0301) as well as provide summarized data from the report in questions A-1 through A-5. If any gasoline was exported in 2011, please supply export data in questions A-1 and A-6.

For Sections A and B, we seek your typical 2011 process or product data as an average. However, if there were any unusual events during 2011 that would distort your full year average data, you may annualize a meaningful period as a substitute, including a period prior to 2011. If you annualize an alternate period, please strive to answer questions in Section A & B based on a consistent time period. Please note that California refiners have three slightly different questions at the bottom of Section B.

Section C asks for your most likely approach or plan to meet a possible future gasoline sulfur average of 10 ppm with four alternative caps. If you don't have a plan yet, please provide your best thinking on a likely approach.

Individual survey responses will be held in strict confidence and the results will be reported in aggregate only. Upon completion or termination of this project, TM&C will destroy or return to the provider any Confidential Information submitted, whether in paper or electronic format. The preferred approach is for you to send your completed questionnaire to TM&C and a Confidentiality Agreement is included in this package if you elect to do this. However, if you prefer, you may alternatively send your questionnaire to API or AFPM, who will blind the identity of the submitter and forward the survey responses to TM&C.

The standard questionnaire is a Microsoft Excel spreadsheet. Most answers can be made by simply placing a value in the designated cell (light green color). Where written answers are required ("Other, please describe"), space is provided. Completed electronic questionnaires should be returned by e-mail to (depending on your preference) either Paul Smith at pbs@turnermason.com, Bryan Just at justb@api.org, or Tim Hogan at thogan@afpm.org. For questions, please contact Paul Smith by e-mail or phone at 214-754-0898.



Please provide the following information:

Company Name:

Refinery Location:

Contact information, if we have any questions.

Name:

Phone:

Fax:

E-mail:

SECTION A: 2011 GASOLINE BATCH DATA

Please give us your complete EPA Batch Report (RFG0301) for 2011 in Excel (our strong preference). If this is not possible, you can alternatively provide the summarized data from the report in A-1 through A-4 below. In either case, please fill out A-5 and A-6, if you produced any CARB or export gasoline and also report those volumes in A-1. Please let us know if any batches produced in 2011 were distorted by unusual events so that we can consider the possibility of excluding any non-representative batches. If you annualize an alternate period, please strive to answer questions in Section A & B based on a consistent time period.

Question		Answer	
A-1	What were your 2011 gasoline batch volumes by type and average sulfur level?	M Bbl	Sulfur, ppmw
	Conventional/CBOB (without ethanol)		
	RBOB (with ethanol)		
	RFG produced without oxygenate, if any		
	CARB (with ethanol)		
	Export		
	Total (Thousands of Barrels)	0	
A-2	For Conventional/CBOB volume shown in A-1, report the volume and sulfur level for each group	M Bbl	Sulfur, ppmw
	Less than 5 ppmw		
	Sulfur Level: 5-9.9 ppmw		
	Sulfur Level: 10-19.9 ppmw		
	Sulfur Level: 20-29.9 ppmw		
	Sulfur Level: 30-49.9 ppmw		
	Sulfur Level: 50-79.9 ppmw		
	Sulfur Level: 80 ppmw or greater		
Total (Thousands of Barrels)	0		
A-3	For RBOB volume shown in A-1, report the volume and sulfur level for each group	M Bbl	Sulfur, ppmw
	Less than 5 ppmw		
	Sulfur Level: 5-9.9 ppmw		
	Sulfur Level: 10-19.9 ppmw		
	Sulfur Level: 20-29.9 ppmw		
	Sulfur Level: 30-49.9 ppmw		
	Sulfur Level: 50-79.9 ppmw		
	Sulfur Level: 80 ppmw or greater		
Total (Thousands of Barrels)	0		
A-4	For RFG volume shown in A-1, report the volume and sulfur level for each group	M Bbl	Sulfur, ppmw
	Less than 5 ppmw		
	Sulfur Level: 5-9.9 ppmw		
	Sulfur Level: 10-19.9 ppmw		
	Sulfur Level: 20-29.9 ppmw		
	Sulfur Level: 30-49.9 ppmw		
	Sulfur Level: 50-79.9 ppmw		
	Sulfur Level: 80 ppmw or greater		
Total (Thousands of Barrels)	0		
A-5	For CARB volume shown in A-1, report the volume and sulfur level for each group	M Bbl	Sulfur, ppmw

SECTION A: 2011 GASOLINE BATCH DATA

Please give us your complete EPA Batch Report (RFG0301) for 2011 in Excel (our strong preference). If this is not possible, you can alternatively provide the summarized data from the report in A-1 through A-4 below. In either case, please fill out A-5 and A-6, if you produced any CARB or export gasoline and also report those volumes in A-1. Please let us know if any batches produced in 2011 were distorted by unusual events so that we can consider the possibility of excluding any non-representative batches. If you annualize an alternate period, please strive to answer questions in Section A & B based on a consistent time period.

Question		Answer	
Less than 5 ppmw			
Sulfur Level: 5-9.9 ppmw			
Sulfur Level: 10-19.9 ppmw			
Sulfur Level: 20-29.9 ppmw			
Sulfur Level: 30-49.9 ppmw			
Sulfur Level: 50-79.9 ppmw			
Sulfur Level: 80 ppmw or greater			
Total (Thousands of Barrels)		0	

A-6	For Export volume shown in A-1, report the volume and sulfur level for each group		M Bbl	Sulfur, ppmw
	Less than 5 ppmw			
	Sulfur Level: 5-9.9 ppmw			
	Sulfur Level: 10-19.9 ppmw			
	Sulfur Level: 20-29.9 ppmw			
	Sulfur Level: 30-49.9 ppmw			
	Sulfur Level: 50-79.9 ppmw			
	Sulfur Level: 80 ppmw or greater			
	Total (Thousands of Barrels)		0	

SECTION B - TYPICAL PROCESS OPERATION FOR 2011

For Section B, please provide your typical 2011 process or product data as an average. However, if there were any unusual events during 2011 that would distort your full year average data, then you may annualize a meaninful period as a substitute, including a period prior to 2011. If you annualize an alternate period, please strive to answer questions in Section A & B based on a consistent time period. Please note that California refineries have 3 slightly different questions to answer, B-11 through B-13, instead of B-9 and B-10 (which should be completed by all other refineries).

Question		Unit A	Unit B	Unit C	Unit A	Unit B	Unit C
B-1	How much FCC naphtha was produced prior to any HDS in Thousands of Barrels in 2011?	M Bbl <div></div>	M Bbl <div></div>	M Bbl <div></div>			
B-2	What was the annual average FCC naphtha sulfur level (ppmw) PRIOR to any HDS during 2011?	<div></div>	<div></div>	<div></div>			
B-3	What was the annual average FCC naphtha sulfur level (ppmw) AFTER any HDS during 2011?	<div></div>	<div></div>	<div></div>			
B-4	For FCC naphtha volume reported above, estimate the hydrotreated volume by analyzed sulfur level during 2011. If possible, also include the estimated average sulfur for the volume falling within each of the defined categories. Sulfur Level: Less than 20 ppmw Sulfur Level: 20-49.9 ppmw Sulfur Level: 50-69.9 ppmw Sulfur Level: 70-89.9 ppmw Sulfur Level: 90-109.9 ppmw Sulfur Level: 110 ppmw or Greater Total (Thousands of Barrels)	M Bbl <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div>0</div>	M Bbl <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div>0</div>	M Bbl <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div>0</div>	Sulfur, ppmw <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div>	Sulfur, ppmw <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div>	Sulfur, ppmw <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div>
B-5	For FCC total fresh feed, report the annual average sulfur levels during 2011 Before HDS, Sulfur, wt % After HDS, Sulfur, wt %	<div></div> <div></div>	<div></div> <div></div>	<div></div> <div></div>			
B-6	For unhydrotreated FCC naphtha, how much storage capacity do you have?	M Bbl <div></div>	M Bbl <div></div>	M Bbl <div></div>			
B-7	For hydrotreated FCC naphtha, how much storage capacity do you have?	M Bbl <div></div>	M Bbl <div></div>	M Bbl <div></div>			
B-8	Please report your typical purchased gasoline blendstocks, if any, during 2011 by volume and sulfur level  a) Natural gasoline b) Reformate c) Alkylate d) Raffinate e) Other, please describe	M Bbl <div></div> <div></div> <div></div> <div></div> <div></div> <div>0</div>	Sulfur, ppmw <div></div> <div></div> <div></div> <div></div> <div></div> <div></div>				

If you are a California refinery, please skip over Questions B-9 and B-10, and answer Questions B-11 thru B-13. Otherwise, a non-California refinery should answer Questions B-9 and B-10 to complete Section B.

SECTION B - TYPICAL PROCESS OPERATION FOR 2011

For Section B, please provide your typical 2011 process or product data as an average. However, if there were any unusual events during 2011 that would distort your full year average data, then you may annualize a meaningful period as a substitute, including a period prior to 2011. If you annualize an alternate period, please strive to answer questions in Section A & B based on a consistent time period. Please note that California refineries have 3 slightly different questions to answer, B-11 through B-13, instead of B-9 and B-10 (which should be completed by all other refineries).

	Question	Unit A	Unit B	Unit C	Unit A	Unit B	Unit C
B-9	During 2011, did the gasoline per gallon sulfur cap of 80 ppmw ever limit the volume of finished gasoline Yes = 1, No = 0	<input type="text"/>					
B-10	If you answered Yes for B-9, how much additional overall finished gasoline volume could you have produced during 2011 if there were no 80 ppmw sulfur cap?	<div>M Bbl <input type="text"/></div>					
B-11	For 2011, which finished gasoline sulfur compliance option did you choose? Place a "1" in appropriate cell. Finished Gasoline sulfur flat limit of 20 ppmw Finished Gasoline sulfur average of 15 ppmw with a cap of 30 ppmw	<div><input type="text"/> <input type="text"/></div>					
B-12	During 2011, did your compliance option limit (Flat or Average) in B-11 ever limit the volume of finished gasoline produced? Yes = 1, No = 0	<input type="text"/>					
B-13	If you answered Yes for B-12, how much additional overall finished gasoline volume could you have produced during 2011 if you had met a 15 ppmw average without a sulfur cap?	<div>M Bbl <input type="text"/></div>					

## SECTION C - FUTURE OPERATIONS WITH GASOLINE SULFUR AVERAGE OF 10 ppmw WITH ALTERNATIVE CAPS

Section C asks for your most likely approach or plan to meet a possible future gasoline sulfur average of 10 ppmw with four alternative caps. If you don't have a plan yet, please provide your best thinking for a likely approach. Please provide an answer for each of the four alternative caps, even if your response is the same for each cap. Place a "1" in each box for which your reply is "Yes".

	Question	Sulfur Cap 20 ppmw	Sulfur Cap 30 ppmw	Sulfur Cap 40 ppmw	Sulfur Cap 60 ppmw
<b>C-1</b>	<b>What is your planned approach or enhancement to making 10 ppmw sulfur gasoline?</b> a) Pre-treating of FCC feed (FCC feed HDS) only b) 100% post-treating (FCC naphtha HDS) only c) Combined pre and 100% post treating d) Combined pre and partial post treating e) Reducing end-point of FCC naphtha f) Other, please describe	<div style="border: 1px solid black; height: 20px; margin-bottom: 2px;"></div> <div style="border: 1px solid black; height: 20px; margin-bottom: 2px;"></div> <div style="border: 1px solid black; height: 20px; margin-bottom: 2px;"></div> <div style="border: 1px solid black; height: 20px; margin-bottom: 2px;"></div> <div style="border: 1px solid black; height: 20px; margin-bottom: 2px;"></div> <div style="border: 1px solid black; height: 20px;"></div>	<div style="border: 1px solid black; height: 20px; margin-bottom: 2px;"></div> <div style="border: 1px solid black; height: 20px; margin-bottom: 2px;"></div> <div style="border: 1px solid black; height: 20px; margin-bottom: 2px;"></div> <div style="border: 1px solid black; height: 20px; margin-bottom: 2px;"></div> <div style="border: 1px solid black; height: 20px; margin-bottom: 2px;"></div> <div style="border: 1px solid black; height: 20px;"></div>	<div style="border: 1px solid black; height: 20px; margin-bottom: 2px;"></div> <div style="border: 1px solid black; height: 20px; margin-bottom: 2px;"></div> <div style="border: 1px solid black; height: 20px; margin-bottom: 2px;"></div> <div style="border: 1px solid black; height: 20px; margin-bottom: 2px;"></div> <div style="border: 1px solid black; height: 20px; margin-bottom: 2px;"></div> <div style="border: 1px solid black; height: 20px;"></div>	<div style="border: 1px solid black; height: 20px; margin-bottom: 2px;"></div> <div style="border: 1px solid black; height: 20px; margin-bottom: 2px;"></div> <div style="border: 1px solid black; height: 20px; margin-bottom: 2px;"></div> <div style="border: 1px solid black; height: 20px; margin-bottom: 2px;"></div> <div style="border: 1px solid black; height: 20px; margin-bottom: 2px;"></div> <div style="border: 1px solid black; height: 20px;"></div>
<b>C-2</b>	<b>Under your planned approach to making 10 ppmw sulfur gasoline, what would be your most likely responses to a significant unplanned reduction of low sulfur blendstocks, such as reformate, alkylate, raffinate, etc lost suddenly? Place a 1 for your most likely response. Place a 2 for your next most likely response.</b> a) Increase severity of FCC pre-treater and/or post-treater b) Store high sulfur components c) Sell high-sulfur components and/or export high-sulfur gasoline d) Idle or significantly reduce feed rate to FCC e) Purchase low sulfur components f) Reduce end-point of FCC naphtha g) Other, please describe	<div style="border: 1px solid black; height: 20px; margin-bottom: 2px;"></div> <div style="border: 1px solid black; height: 20px; margin-bottom: 2px;"></div> <div style="border: 1px solid black; height: 20px; margin-bottom: 2px;"></div> <div style="border: 1px solid black; height: 20px; margin-bottom: 2px;"></div> <div style="border: 1px solid black; height: 20px; margin-bottom: 2px;"></div> <div style="border: 1px solid black; height: 20px; margin-bottom: 2px;"></div> <div style="border: 1px solid black; height: 20px;"></div>	<div style="border: 1px solid black; height: 20px; margin-bottom: 2px;"></div> <div style="border: 1px solid black; height: 20px; margin-bottom: 2px;"></div> <div style="border: 1px solid black; height: 20px; margin-bottom: 2px;"></div> <div style="border: 1px solid black; height: 20px; margin-bottom: 2px;"></div> <div style="border: 1px solid black; height: 20px; margin-bottom: 2px;"></div> <div style="border: 1px solid black; height: 20px; margin-bottom: 2px;"></div> <div style="border: 1px solid black; height: 20px;"></div>	<div style="border: 1px solid black; height: 20px; margin-bottom: 2px;"></div> <div style="border: 1px solid black; height: 20px; margin-bottom: 2px;"></div> <div style="border: 1px solid black; height: 20px; margin-bottom: 2px;"></div> <div style="border: 1px solid black; height: 20px; margin-bottom: 2px;"></div> <div style="border: 1px solid black; height: 20px; margin-bottom: 2px;"></div> <div style="border: 1px solid black; height: 20px; margin-bottom: 2px;"></div> <div style="border: 1px solid black; height: 20px;"></div>	<div style="border: 1px solid black; height: 20px; margin-bottom: 2px;"></div> <div style="border: 1px solid black; height: 20px; margin-bottom: 2px;"></div> <div style="border: 1px solid black; height: 20px; margin-bottom: 2px;"></div> <div style="border: 1px solid black; height: 20px; margin-bottom: 2px;"></div> <div style="border: 1px solid black; height: 20px; margin-bottom: 2px;"></div> <div style="border: 1px solid black; height: 20px; margin-bottom: 2px;"></div> <div style="border: 1px solid black; height: 20px;"></div>
<b>C-3</b>	<b>Under your planned approach to making 10 ppmw sulfur gasoline, what would be your most likely responses to a significant planned reduction of low sulfur blendstocks, such as reformate, alkylate, raffinate, etc lost during a turnaround? Place a 1 for your most likely response. Place a 2 for your next most likely response.</b> a) Increase severity of FCC pre-treater and/or post-treater b) Store high sulfur components c) Sell high-sulfur components and/or export high-sulfur gasoline d) Idle or significantly reduce feed rate to FCC e) Purchase low sulfur components	<div style="border: 1px solid black; height: 20px; margin-bottom: 2px;"></div> <div style="border: 1px solid black; height: 20px; margin-bottom: 2px;"></div> <div style="border: 1px solid black; height: 20px; margin-bottom: 2px;"></div> <div style="border: 1px solid black; height: 20px; margin-bottom: 2px;"></div> <div style="border: 1px solid black; height: 20px;"></div>	<div style="border: 1px solid black; height: 20px; margin-bottom: 2px;"></div> <div style="border: 1px solid black; height: 20px; margin-bottom: 2px;"></div> <div style="border: 1px solid black; height: 20px; margin-bottom: 2px;"></div> <div style="border: 1px solid black; height: 20px; margin-bottom: 2px;"></div> <div style="border: 1px solid black; height: 20px;"></div>	<div style="border: 1px solid black; height: 20px; margin-bottom: 2px;"></div> <div style="border: 1px solid black; height: 20px; margin-bottom: 2px;"></div> <div style="border: 1px solid black; height: 20px; margin-bottom: 2px;"></div> <div style="border: 1px solid black; height: 20px; margin-bottom: 2px;"></div> <div style="border: 1px solid black; height: 20px;"></div>	<div style="border: 1px solid black; height: 20px; margin-bottom: 2px;"></div> <div style="border: 1px solid black; height: 20px; margin-bottom: 2px;"></div> <div style="border: 1px solid black; height: 20px; margin-bottom: 2px;"></div> <div style="border: 1px solid black; height: 20px; margin-bottom: 2px;"></div> <div style="border: 1px solid black; height: 20px;"></div>

SECTION C - FUTURE OPERATIONS WITH GASOLINE SULFUR AVERAGE OF 10 ppmw WITH ALTERNATIVE CAPS

Section C asks for your most likely approach or plan to meet a possible future gasoline sulfur average of 10 ppmw with four alternative caps. If you don't have a plan yet, please provide your best thinking for a likely approach. Please provide an answer for each of the four alternative caps, even if your response is the same for each cap. Place a "1" in each box for which your reply is "Yes".

Question	Sulfur Cap 20 ppmw	Sulfur Cap 30 ppmw	Sulfur Cap 40 ppmw	Sulfur Cap 60 ppmw
f) Reduce end-point of FCC naphtha				
g) Other, please describe				

C-4 Under your planned approach to making 10 ppmw sulfur gasoline, what would be your most likely responses to a significant (planned or unplanned) elevation of sulfur in catalytic cracked gasoline product due to an outage of a catalytic cracking pre-treater or post-treater? Place a 1 for your most likely response. Place a 2 for your next most likely response.

- a) Increase severity at the unaffected unit (FCC pre-treater or post-treater), if applicable
- b) Store high sulfur components
- c) Sell high-sulfur components and/or export high-sulfur gasoline
- d) Idle or significantly reduce feed rate to FCC
- e) Purchase low sulfur components
- f) Reduce end-point of FCC naphtha
- g) Other, please describe


C-5 Under your planned approach to making 10 ppmw sulfur gasoline, do you anticipate building or allocating more storage capacity for any gasoline blending components? Place a 1 for all that apply.

- a) Natural gasoline
- b) Reformate
- c) Alkylate
- d) Raffinate
- e) Light SR naphtha
- f) Light coker naphtha
- g) Unhydrotreated FCC naphtha
- h) Hydrotreated FCC naphtha
- i) Other, please describe


SECTION C - FUTURE OPERATIONS WITH GASOLINE SULFUR AVERAGE OF 10 ppmw WITH ALTERNATIVE CAPS

Section C asks for your most likely approach or plan to meet a possible future gasoline sulfur average of 10 ppmw with four alternative caps. If you don't have a plan yet, please provide your best thinking for a likely approach. Please provide an answer for each of the four alternative caps, even if your response is the same for each cap. Place a "1" in each box for which your reply is "Yes".

	Question	Sulfur Cap 20 ppmw	Sulfur Cap 30 ppmw	Sulfur Cap 40 ppmw	Sulfur Cap 60 ppmw
C-6	<p>Under your planned approach to making 10 ppmw sulfur gasoline, which gasoline blendstocks (other than FCC naphtha) will contain more than 10 ppmw sulfur? Place a 1 for all that apply.</p> <p>a) Natural gasoline b) Reformate c) Alkylate d) Raffinate e) Light SR naphtha f) Light coker naphtha i) Other, please describe</p>	<div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div>	<div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div>	<div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div>	<div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div>
C-7	<p>Under your planned approach to making 10 ppmw sulfur gasoline, how many treated FCC naphtha streams will you have available for blending?</p> <p>a) One b) Two or more (including streams from multiple treaters) c) Other, please describe</p>	<div></div> <div></div> <div></div>	<div></div> <div></div> <div></div>	<div></div> <div></div> <div></div>	<div></div> <div></div> <div></div>
C-8	<p>Under your planned approach to making 10 ppmw sulfur gasoline, which configuration do you plan to have?</p> <p>a) Multiple FCC post treaters (parallel units only) b) Multiple FCC pre treaters c) Single train only d) Other, please describe</p>	<div></div> <div></div> <div></div> <div></div>	<div></div> <div></div> <div></div> <div></div>	<div></div> <div></div> <div></div> <div></div>	<div></div> <div></div> <div></div> <div></div>
C-9	<p>Under your planned approach to making 10 ppmw sulfur gasoline, will you hydrotreat LSR naphtha?</p> <p>a) No b) Yes, in a single full range naphtha HDS c) Yes, commingled with feed to a FCC naphtha HDS c) Yes, in a single LSR naphtha HDS d) Yes, in multiple LSR naphtha HDS units e) Yes, in multiple full range naphtha HDS units</p>	<div></div> <div></div> <div></div> <div></div> <div></div> <div></div>	<div></div> <div></div> <div></div> <div></div> <div></div> <div></div>	<div></div> <div></div> <div></div> <div></div> <div></div> <div></div>	<div></div> <div></div> <div></div> <div></div> <div></div> <div></div>



SECTION C - FUTURE OPERATIONS WITH GASOLINE SULFUR AVERAGE OF 10 ppmw WITH ALTERNATIVE CAPS

Section C asks for your most likely approach or plan to meet a possible future gasoline sulfur average of 10 ppmw with four alternative caps. If you don't have a plan yet, please provide your best thinking for a likely approach. Please provide an answer for each of the four alternative caps, even if your response is the same for each cap. Place a "1" in each box for which your reply is "Yes".

	Question	Sulfur Cap 20 ppmw	Sulfur Cap 30 ppmw	Sulfur Cap 40 ppmw	Sulfur Cap 60 ppmw
	f) Yes, commingled with feed to multiple FCC naphtha HDS units				
	f) Other, please describe				
C-10	Under your planned approach to making 10 ppmw sulfur gasoline, will you have the ability to sell significant volumes of high sulfur gasoline components in order to stay below the cap?				
	a) Sell components				
	b) Export gasoline				
	c) Both sell components and export gasoline				
	d) Neither				
C-11	Under your planned approach to making 10 ppmw sulfur gasoline, rate the difficulty of complying with the per gallon sulfur cap during turnarounds, shutdowns and upsets. Place a "1" in the best answer for each cap.				
	a) No difficulty				
	b) Some difficulty (small economic loss)				
	c) Moderate difficulty (reduced gasoline production as much as 10%)				
	d) Great difficulty (reduced gasoline production 11-30%)				
	e) Severe difficulty (reduced gasoline production 31-50%)				
	f) Nearly impossible (>50% reduction of gasoline production)				
C-12	What is your estimated capital spending required ABOVE that needed to meet a 10 ppmw average sulfur level in order to comply with the sulfur CAPS as shown? Place a "1" in the best answer for each cap.				
	a) Less than \$10 million				
	b) \$10-50 million				
	c) \$50-100 million				
	d) \$100-250 million				
	e) Greater than \$250 million				

EO 12866 Meeting on U.S. Environmental Protection Agency Draft Final Rule, "Control of Air Pollution from Motor Vehicles: Tier 3 Motor Vehicle Emission and Fuel Standards," RIN 2060-AQ86

Timing of Similarly Significant Rulemakings

Rulemaking	Federal Register Publication Date		Implementation Dates
	Proposed Rule	Final Rule	
ULSD Highway Rule	2-Jun-00	18-Jan-01	80% of highway diesel required to meet 15 ppm S at retail by 9/1/2006; 100% of highway diesel must meet 15 ppm S at retail by 12/1/2010 (2006->2010 phase in)
ULSD Non-Road Rule	23-May-03	29-Jun-04	Fuel sulfur in NRLM applications capped at 500 ppm in 6/1/2007; 15 ppm 6/1/2010 (fully phased-in 2014)
Marine Bunker Rule	28-Aug-09	30-Apr-10	Fuel used in Category 3 Marine engines (i.e., bunker) capped at 1000 ppm S in ECA areas (at retail) by 12/1/2014
MSAT2 Rule	29-Mar-06	26-Feb-07	1/1/2011 (annual avg Bz limit); 7/1/2012 (per gal Bz cap)
Tier 2 Gasoline S	13-May-99	10-Feb-00	30 ppm avg/80 ppm S cap Stds phased in between 1/1/2004 and 1/1/2006 for most refiners & importers

API / AFPM Comments (Comment attachment #1)

ABT program comments begin on page 52

SGS Environmental Testing Corp. (Comment attachment #11)

Research indicating that the increase in exhaust emissions from late model vehicles exposed to as much as 80 ppm S in gasoline is fully reversible within a short period of time (i.e., ~70 miles of driving) following a return to operation on gasoline containing 10 ppm S.

Turner, Mason & Company Consulting Engineers (Comment attachment # 12)

Study assessing the increased cost to manufacture gasoline (\$2 billion to over \$6 billion) and the potential loss of gasoline supply (130 MBPD) at a 20 ppm cap that also concluded that regions served by just a few refineries could experience shortages of 25% - 50% during outages of gasoline sulfur reduction units at a 20 ppm cap.

API supplemental comments filed October 24 (linked below)

Our response to the supplemental comments filed by MECA attempting to rebut the API/AFPM written comments concerning: (a) EPA's inadequate justification of a technical need for a 10

ppm gasoline S standard, and (b) the future market penetration prospects for lean-burn GDI technology in the US light-duty vehicle fleet.

<http://www.regulations.gov/#!documentDetail;D=EPA-HQ-OAR-2011-0135-4923>

API supplemental comments filed October 25 (linked below)

A report by HD Systems that further supports the assertion that automakers will rely on other, more cost-effective technologies which will not require the highly sulfur sensitive and costly exhaust after-treatment devices needed with lean-burn engines.

<http://www.regulations.gov/#!documentDetail;D=EPA-HQ-OAR-2011-0135-4922>

## Refinery Lead Time Assessment

**Summary:** Even without the flexibilities provided by the Tier 3 Rule, most refineries should have no difficulty complying with the sulfur standard by January 1, 2017 or earlier. The various flexibilities that the Tier 3 rule provides to refiners - the ABT program, the small refiner delay provisions and the hardship provisions - assures for those limited instances where needed that there is additional time for complying.

### Lead Time is More Than Sufficient for Most Refineries to Comply by January 1, 2017 or Earlier

As noted by EPA in its proposal, six main planning and action steps are required for refiners to comply with the Tier 3 sulfur standards:

1. the completion of scoping studies
2. process design for new or revamped refinery units or subunits
3. permitting
4. detailed engineering based upon the process design
5. field construction of the gasoline sulfur reduction facilities, and
6. Start-up and shakedown of the newly installed desulfurization equipment.

Because of refinery modifications that were made to comply with EPA's Tier 2 requirements, EPA estimates that 17 refineries are either already in compliance with the 10-ppm standard or expected to comply with simple process changes. In addition, many refineries will only need to revamp their existing FCC posttreaters to comply with Tier 3. EPA estimates that there are 66 such refineries and their revamps can be completed within two years or less. If these refiners begin each of these revamps in 2014, these refineries could be producing Tier 3 gasoline by 2016 if they choose to and could potentially begin generating early credits during 2016 or before.

	Estimated Compliance Timelines (Months)							
	0-3	3-6	6-9	9-12	12-15	15-18	18-21	21-24
Scoping Studies								
Process Design								
Permitting								
Detailed Engineering								
Field Construction								

Start-up/Shakedown							
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EPA estimated that 16 refineries would likely require the construction of new grassroots FCC posttreaters to provide Tier 3 fuel. These grassroots FCC posttreaters, however, are expected to be in a moderate to light desulfurization mode because the refineries they will be installed in will already be complying with Tier 2 using an FCC pretreater. FCC naphtha from a refinery with an FCC pretreater is expected to only contain about 100 ppm sulfur. To comply with Tier 3, refiners installing these grassroots FCC posttreaters would only need to desulfurize the FCC naphtha down to 25 ppm (about a 75% reduction). In comparison, a single-stage FCC posttreater would have to desulfurize FCC naphtha from as high as 2400 ppm sulfur down to 25 ppm, a 99% sulfur reduction. The more moderate desulfurization service of the grassroots FCC posttreaters needed to comply with Tier 3 would be expected to streamline the scoping and design work.

In addition, only 2 of the 16 refineries which are projected to install grassroots units were projected by EPA to exceed particular permitting limits, and these solely did so based on the most conservative assumption that each would produce all the additional hydrogen on site using hydrogen plants (as opposed to using existing reforming capacity) and produce the electricity on site, to satisfy the needs of the new desulfurization equipment. When EPA provided a second heat demand estimate which assumes that refiners purchase their hydrogen and electricity from third parties, none of these refineries was projected to have emission increases which would require offsets. Thus, many of the grassroots units that EPA projected would be installed may end up with a streamlined permitting process.

Finally, in its proposal, EPA highlights its view that in reality, less lead time than estimated would actually be necessary. EPA noted that it held discussions with many refiners during most of 2011, and they have therefore been well aware of Tier 3 and are familiar with the likely requirements. During EPA's subsequent discussions with technology vendors and engineering firms, they explained to EPA that many refiners had already initiated, and by now, likely completed their scoping studies. Thus, actual time needed for designing, installing and starting of new desulfurization equipment for Tier 3 times would even be less than what was projected because many refineries may have already completed required scoping studies in anticipation of the Tier-3 standards. Moreover, lead times for those refineries that have yet to start the scoping process can also be expected to decrease, since fewer refineries will be competing for the services of the desulfurization vendors.

### **Three Years Lead Time Was Adequate For Tier 2 and Tier 3 Requires Much Less Investment**

For the Tier 2 analysis, EPA assumed that refiners would solely install **low-pressure** FCC posttreaters, which it believed could be scoped out, designed, installed and started up within a 3 year time period. However, For Tier 2 virtually all refiners installed both

grassroots FCC pretreaters and posttreaters. Also many refiners installed **high-pressure** FCC pretreaters which required longer lead times for the procurement of the required equipment than the low pressure equipment estimated by EPA. Furthermore, those refiners that did not install high-pressure FCC pretreaters instead installed grassroots FCC posttreaters, many of which were designed for **severe desulfurization service**. The demands on the desulfurization vendors for scoping studies, and on the E & C industry for design and construction, and on the refiners to train their operations staff and start up the new units, was a lot greater for Tier 2 than what one would expect for Tier 3.

The total estimated investment cost for Tier 2 versus Tier 3 also highlights the difference in investment demands. The total investment for Tier-2 desulfurization processing units was estimated by EPA to be about \$6.1 billion, while the total investment for Tier-3 desulfurization processing units is estimated by EPA to be about \$2.1 billion. This simple comparison indicates that the Tier 3 lead time should be substantially less for most refineries to obtain necessary permits, secure engineering and construction (E&C) resources, install new desulfurization equipment and make all necessary retrofits to meet the proposed sulfur standards.

### **EPA Provides Broad Flexibilities Should Any Refiner Have Lead Time Challenges**

These flexibilities include the ABT program, the small refiner delay provisions and the hardship provisions. The ABT program allows a refiner, either within its own company or by purchasing credits on the open market, to have additional time for installing grassroots FCC posttreater units. This would occur if refiners would reduce the sulfur levels of their gasoline through operational changes or revamps of their existing FCC pretreaters and posttreaters when the ABT Program begins in 2014. Potentially every refinery with either an FCC pretreater or an FCC posttreater may be capable of generating early credits.

EPA estimated that sufficient credits could be generated early to allow many refineries to delay compliance until as late as 2020. The quantitative early credit analysis that EPA conducted showed that if refiners with an existing pretreater or posttreater would generate early credits by lowering their gasoline sulfur down to 20 ppm starting in 2014 and if revamps were started up in 2016, one year before the program start date, that almost 6 times more credits would be available to offset the early credit demand by the refiners installing grassroots posttreater units, assuming that they start up those units in 2018. Even if all grassroots posttreaters were assumed to not start up until 2020, there would be almost 4 times more early credits available to those refiners installing grassroots posttreaters assuming that the same early credit generation scenario would occur

Additional flexibility is also provided by the small refineries provisions which delays compliance for the refineries which refine less than a net of 75,000 barrels of crude oil per day until 2020. Three of the 16 FCC posttreater grassroots units that EPA projects will be installed would be by small refineries. However, small refineries could also decide to comply early and generate credits starting as early as 2014.

Michael P. Walsh  
International Consultant  
February 17, 2014

As in previous fuel programs, EPA is also proposing hardship provisions to accommodate a refiner's inability to comply with the proposed standard at the start of the Tier 3 program, and to deal with unforeseen circumstances that may occur at any point during the program. These provisions would be available to all refiners though relief would be granted on a case-by-case basis following a showing of certain requirements; primarily that compliance through the use of credits was not feasible.

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# United States Senate

COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS

WASHINGTON, DC 20510-6176

RICHARD M. RUSSELL, MAJORITY STAFF DIRECTOR  
GABRIELLE BATKIN, MINORITY STAFF DIRECTOR

March 16, 2018

President Donald J. Trump  
The White House  
1600 Pennsylvania Avenue, NW  
Washington, DC 20500

Dear Mr. President,

I write today regarding the Environmental Protection Agency's (EPA) Renewable Fuel Standard (RFS). I appreciate your efforts to bring biofuel and refinery stakeholders together to address the volatility in the RFS compliance trading system, known as the Renewable Identification Number (RIN) market. As someone who has both constituents who benefit from the RFS program and constituents who work at several of the last merchant refineries along the East Coast, I understand full well the difficulty of finding common ground on this issue. The one problem that both constituencies identify as a concern is RIN market manipulation. It's clear that market manipulation in the RIN market is occurring, and it is causing market volatility and price spikes. It must be addressed in any solution.

In the Energy Independence and Security Act (EISA) of 2007, Congress took several steps to try to change our nation's bleak energy future. At the time, our nation's consumption of gasoline and diesel was growing exponentially, draining consumers' pocketbooks and increasing our country's dependence on imported oil. In EISA, Congress doubled the domestic biofuel mandate to 36 billion gallons by 2022 and included new incentives to spur the production of advanced biofuels that were better for the environment and not derived from the food we eat or feed our livestock. Today, thanks to the groundwork laid in 2007, consumers pay less at the pump and our nation is no longer a net importer of oil. The RFS has played a critical part in this success. I continue to believe that biofuels, if done correctly, can give us an environmentally friendlier option to reduce our dependence on fossil fuels, help reduce our dependence on foreign energy production and provide economic opportunities for our farming communities. However, I do not believe that we can ignore any unintended consequences – economic or environmental – of increasing our biofuel mandate.

Over the past four years, RIN prices have fluctuated wildly. In the past year alone, RIN prices have fluctuated from around thirty cents to over a dollar. This price volatility creates great uncertainty for merchant refineries, like the one in Delaware City, Delaware, that have limited capability to blend biofuels into their products and need RINs to comply with the RFS program's requirements. East Coast refineries already face slim profit margins, in part due to their dependence on international markets for crude feedstock, high gasoline inventories and competition from global refiners. According to my constituents who work at the Delaware City refinery and at the nearby Philadelphia refineries, the viability of the Mid-Atlantic refineries is now threatened because of the volatile RIN market.



The EPA, in coordination with other federal agencies, could take a number of steps to reduce RIN market volatility. It is my hope that you will direct the EPA to take these steps immediately.

First, EPA should take action to be more transparent and provide more trading data to market participants, without disclosing proprietary information, from EPA's RIN tracking program, the Moderated Transaction System. California's renewable fuel program serves as an example of how EPA could collect and release data weekly, monthly, quarterly and annually in order to provide valuable insight into trading and greatly help reduce RIN market volatility.

Second, EPA should be collecting better data to detect and prevent RIN market manipulation. I encourage your staff to talk to the Commodity Futures Trading Commission (CFTC) and the Federal Trade Commission (FTC) to understand the data points that need to be collected to provide better oversight of the RIN market and require EPA to start collecting such data.

Finally, the CFTC and FTC must have a more active role with EPA to help monitor RIN market behavior. In 2016, the EPA entered into a Memorandum of Understanding with the CFTC to try to address this concern. Unfortunately, there has been little collaboration between the agencies to clamp down on responsible parties. The EPA-CFTC Memorandum of Understanding must be strengthened to require the CFTC to have more of an active role in RIN market manipulation oversight. What's more, Congress has already given the Federal Trade Commission the authority to regulate manipulative or deceptive conduct in wholesale petroleum markets under Subtitle B of the Energy Independence and Security Act of 2007. The FTC should use this authority to investigate manipulation in the RIN market and take enforcement actions where appropriate. Right now, that isn't happening.

In closing, the Delaware City and Philadelphia refineries employ over a thousand hardworking Delawareans, whose day-to-day work makes a positive impact on Americans across the country. The RFS also provides economic and energy opportunities for the people of my state and every state in this nation. I believe we can find a way for both industries to exist and prosper. In order to do that, our policies must address RIN market manipulation immediately. RIN market manipulation hurts both biofuel producers and refiners, and it is directly harming my constituents. That is why I urge your Administration to act urgently and use its authorities today to curb this activity.

I would be happy to discuss this matter further with you. Should your staff have questions, please feel free to contact Laura Gillam in my office at [laura\\_gillam@epw.senate.gov](mailto:laura_gillam@epw.senate.gov).

With best personal regards, I am,

Sincerely yours,

  
Tom Carper  
Ranking Member

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SHELLEY MOORE CAPITO, WEST VIRGINIA  
JOHN BOOZMAN, ARKANSAS  
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# United States Senate

COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS

WASHINGTON, DC 20510-6175

RICHARD M. RUSSELL, MAJORITY STAFF DIRECTOR  
GABRIELLE BATYEN, MINORITY STAFF DIRECTOR

March 5, 2018

The Honorable E. Scott Pruitt  
Administrator  
Environmental Protection Agency  
1200 Pennsylvania Ave., NW  
Washington, D.C. 20460

The Honorable Rick Perry  
Secretary  
Department of Energy  
1000 Independence Ave., SW  
Washington, D.C. 20585

Dear Administrator Pruitt and Secretary Perry:

We write to reaffirm our strong support for your leadership in providing, as Congress intended, relief to small refineries suffering hardship under the Renewable Fuel Standard (RFS). Hardship relief is critical to the commercial viability and survival of small refineries – and the thousands of jobs that they provide – in our home states and across the country. We are deeply troubled by the recent attacks on hardship relief for small refineries and what seem to be the efforts of some opponents to obtain confidential business information about these entities. We urge you, in the strongest terms, to ensure that your staff and contractors do not disclose to any outside parties the confidential and other sensitive information of small refineries that petition for hardship relief.

Under the RFS, a small refinery may petition the Environmental Protection Agency (EPA) for relief from its annual renewable fuel volume obligations (RVOs) based on “disproportionate economic hardship.” When evaluating a petition, EPA consults with the Department of Energy (DOE), which uses detailed scoring metrics to determine whether a small refinery would suffer disproportionate economic hardship. Generally, a small refinery must experience a high cost of compliance relative to the industry average or an effect sufficient to cause a significant impairment of the refinery’s viability. To show this, a small refinery must submit confidential and other sensitive information about its financial status, compliance status, and market position, the disclosure of which would compound the harm that the RFS already causes to the refinery.

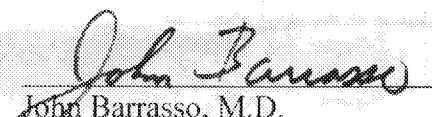
In January, we were alarmed that *Reuters* reported the number of small refineries currently petitioning for hardship relief. While we understand that EPA and DOE consider the identity of these small refineries to be confidential business information, we are concerned that opponents may be trying to obtain this and other highly sensitive information through other means, such as federal securities laws, Freedom of Information Act requests, and contacts with government officials involved in this process. Many of these opponents compete with small refineries by, for example, selling refined products in the same market or renewable identification numbers to small refineries. If opponents obtain this information, they would be able to extract even greater profits from or at the expense of small refineries. EPA and DOE must not let that happen.

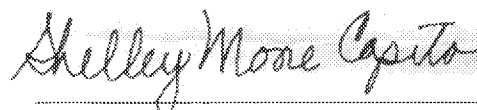
Under the RFS, EPA’s responsibility is not to maximize the amount of corn ethanol used as transportation fuel. Nor is it to enhance the competitive position of large refiners and others who profit from the RFS. Rather, EPA’s responsibility is to apply the law, which requires the

Administrator, in consultation with the Secretary, to provide relief to any small refinery that would suffer disproportionate economic hardship from the RFS. We ask you to continue to fulfill this responsibility and do so in a timely manner. We make this request regardless of whether EPA continues its long-standing practice – which we strongly support – of *not* allocating the annual RVOs of small refineries to other refineries when providing relief after setting the RVOs.

Thank you for your consideration and we look forward to your prompt response.

Sincerely,

  
John Barrasso, M.D.  
Chairman

  
Shelley Moore Capito  
Chair  
U.S. Senate Subcommittee on  
Clean Air and Nuclear Safety

**ORAL ARGUMENT NOT YET SCHEDULED**

**IN THE UNITED STATES COURT OF APPEALS  
FOR THE DISTRICT OF COLUMBIA CIRCUIT**

**CONSOLIDATED DOCKET NOS. 13-1265, 13-1267, 13-1268**

---

MONROE ENERGY, LLC, *ET AL.*,

PETITIONERS,

V.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY,

RESPONDENT.

---

ON PETITIONS FOR REVIEW OF FINAL AGENCY ACTION OF THE  
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

---

**BRIEF FOR RESPONDENT EPA**

---

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FEBRUARY 4, 2014

**IN THE UNITED STATES COURT OF APPEALS  
FOR THE DISTRICT OF COLUMBIA CIRCUIT**

MONROE ENERGY, LLC, et al.,	)	
	)	
Petitioners,	)	
	)	
v.	)	No. 13-1265 (consolidated
	)	with Nos. 13-1267 and
UNITED STATES ENVIRONMENTAL	)	13-1268)
PROTECTION AGENCY,	)	
	)	
Respondent.	)	
_____	)	

**RESPONDENT’S CERTIFICATE AS TO PARTIES, RULINGS, AND  
RELATED CASES**

Pursuant to Circuit Rule 28(a)(1), counsel for Respondent United States Environmental Protection Agency submits this certificate as to parties, rulings, and related cases.

**A. Parties and *Amici***

All parties and intervenors appearing in this Court are accurately identified in the Brief of Petitioner Monroe Energy, LLC.

**B. Rulings Under Review**

The agency action under review is the United States Environmental Protection Agency’s (“EPA’s” or “the Agency’s”) final rule entitled “Regulation of Fuel and Fuel Additives: 2013 Renewable Fuel Standards,” 78 Fed. Reg. 49,794 (Aug. 15, 2013).

### C. Related Cases

This case was not previously before this Court or any other court. Petitioner Monroe Energy, LLC (“Monroe”) recently filed a petition in this Court titled Monroe Energy, LLC v. United States Environmental Protection Agency, No. 14-1014 (D.C. Cir. Jan. 28, 2014), which challenges EPA’s regulation, promulgated in 2010 and codified at 40 C.F.R. § 80.1406, that designates refiners and importers of gasoline or diesel fuel as “obligated parties” under the Renewable Fuel Standards program. Monroe asserts that its new petition is based on grounds arising in EPA’s pending 2014 renewable fuel standards rulemaking. See 78 Fed. Reg. 71,732 (Nov. 29, 2013) (proposed RFS for 2014). As required by this Court’s precedent, Monroe has also filed an administrative petition with EPA for a change in the 2010 regulation. See Oljato Chapter of the Navajo Tribe v. Train, 515 F.2d 654, 666 (D.C. Cir. 1975).

Respectfully submitted,

ROBERT G. DREHER  
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Dated: February 4, 2014

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## TABLE OF CONTENTS

JURISDICTION.....	1
STATEMENT OF ISSUES .....	1
STATEMENT OF FACTS .....	2
I. STATUTORY BACKGROUND .....	2
II. REGULATORY BACKGROUND.....	6
A. Renewable Identification Numbers.....	6
B. The 2013 RFS Rule .....	8
STANDARD OF REVIEW .....	12
SUMMARY OF ARGUMENT .....	13
ARGUMENT .....	16
I. EPA’S DECISION NOT TO REDUCE THE TOTAL RENEWABLE FUEL APPLICABLE VOLUME FOR 2013 WAS REASONABLE .....	16
A. EPA Reasonably Exercised Its Discretion to Evaluate the Feasibility and Impact of Retaining the Statutory Volumes .....	16
B. EPA’s Decision Not to Reduce the 2013 Statutory Volume for Total Renewable Fuel Is Consistent With the Purposes of the RFS Program.....	22
C. EPA Reasonably Considered the Banking and Pricing of RINs.....	24
II. THE 2013 STANDARDS ARE NOT IMPERMISSIBLY LATE OR RETROACTIVE.....	31
A. The Court’s Retroactivity Analysis Should Be Guided By the 2010 <u>NPRA</u> Decision .....	31

B.	This Case Is Indistinguishable In Relevant Respects From <u>NPRA</u> .....	33
1.	EPA has the authority to issue the 2013 annual percentage standards after the statutory deadline .....	33
2.	EPA has the authority to retroactively apply the 2013 annual percentage standards to the entire calendar year and did so reasonably .....	34
C.	Monroe’s Remaining Arguments Are Meritless .....	38
III.	THE FINAL STANDARDS REASONABLY ACCOUNTED FOR CHANGES IN THE ENERGY INFORMATION ADMINISTRATION’S ESTIMATE AND A SMALL REFINERY EXEMPTION .....	40
A.	EPA Reasonably Considered EIA’s Updated Estimate .....	41
B.	EPA Properly Adjusted the Final Standards To Account For A Small Refinery Exemption Granted Before the Promulgation Date, As Required By Existing Regulations .....	49
IV.	IF THE COURT DOES NOT STAY THE REMAINING ISSUES, IT SHOULD FIND THAT EPA’S PROJECTION OF CELLULOSIC BIOFUEL PRODUCTION IN 2013 WAS REASONABLE .....	53
A.	EPA Gave Notice of and Reasonably Explained and Applied Its Methodology for Projecting Cellulosic Production .....	54
B.	EPA Reasonably Considered KiOR’s May 2013 Quarterly Update .....	57
C.	Petitioners’ Remaining Objections Require Exhaustion of the Reconsideration Process .....	58
	CONCLUSION .....	58



## TABLE OF AUTHORITIES

### CASES

<u>Am. Frozen Food Inst. v. Train,</u> 539 F.2d 107 (D.C. Cir. 1976).....	47, 48
<u>American Lung Ass'n v. EPA,</u> 134 F.3d 388 (D.C. Cir. 1998).....	22
<u>API v. Costle,</u> 609 F.2d 20 (D.C. Cir. 1979).....	53
* <u>API v. EPA,</u> 706 F.3d 474 (D.C. Cir. 2013).....	17, 21, 23, 42, 45, 46, 56
* <u>BASF Wyandotte Corp. v. Costle,</u> 598 F.2d 637 (1st Cir. 1979).....	47
<u>Bluewater Network v. EPA,</u> 370 F.3d 1 (D.C. Cir. 2004).....	12
<u>Bowen v. Georgetown Univ. Hosp.,</u> 488 U.S. 204 (1988).....	34
* <u>Catawba Cnty., N.C. v. EPA,</u> 571 F.3d 20 (D.C. Cir. 2009).....	17
<u>Chevron, U.S.A., Inc. v. NRDC, Inc.,</u> 467 U.S. 837 (1984).....	13
* <u>Entergy Corp. v. Riverkeeper, Inc.,</u> 556 U.S. 208 (2009).....	16
<u>Envtl. Integrity Project v. EPA,</u> 425 F.3d 992(D.C. Cir. 2005).....	48

---

\* An asterix is used to identify authorities on which EPA chiefly relies.

<u>FEC v. Democratic Senatorial Campaign Comm.</u> , 454 U.S. 27 (1981).....	22
<u>Lead Indus. Ass'n v. EPA</u> , 647 F.2d 1130 (D.C. Cir. 1980).....	13
<u>Mossville Envtl. Action Now v. EPA</u> , 370 F.3d 1232 (D.C. Cir. 2004).....	25
<u>Motor Vehicle Mfrs. Ass'n v. State Farm Mut. Auto. Ins. Co.</u> , 463 U.S. 29 (1983).....	13, 21
<u>National Ass'n of Clean Water Agencies v. EPA</u> , 734 F.3d 1115 (D.C. Cir. 2013).....	21
<u>Nat'l Ass'n of Clean Air Agencies v. EPA</u> , 489 F.3d 1221 (D.C. Cir. 2007).....	58
<u>*Nat'l Petrochemical &amp; Refiners Ass'n v. EPA</u> , 630 F.3d 145 (D.C. Cir. 2010).....	31, 32, 33, 34, 35, 36, 37, 38, 40
<u>*Ne. Md. Waste Disposal Auth. v. EPA</u> , 358 F.3d 936 (D.C. Cir. 2004).....	47, 48
<u>New Mexico v. EPA</u> , 114 F.3d 290 (D.C. Cir. 1997).....	46
<u>Portland Cement Ass'n v. EPA</u> , 665 F.3d 177 (D.C. Cir. 2011).....	30, 48
<u>*Sierra Club v. Jackson</u> , 648 F.3d 848 (D.C. Cir. 2011).....	17
<u>Sierra Club v. Whitman</u> , 285 F.3d 63 (D.C. Cir. 2002).....	34
<u>*Solite Corp. v. EPA</u> , 952 F.2d 473 (D.C. Cir. 1991).....	46

<u>West Virginia v. EPA,</u> 362 F.3d 861 (D.C. Cir. 2004).....	30
--	----

## STATUTES

Energy Policy Act, Pub. L. No. 109-58, 119 Stat. 495 (2005).....	2
Energy Independence and Security Act, Pub. L. No. 110-140, 121 Stat. 1492 (2007) .....	2, 23
42 U.S.C. § 7545(o) .....	2
42 U.S.C. § 7545(o)(1).....	49
42 U.S.C. § 7545(o)(1)(B) .....	4
42 U.S.C. § 7545(o)(1)(D).....	4
42 U.S.C. § 7545(o)(1)(E) .....	4
42 U.S.C. § 7545(o)(1)(J) .....	4
42 U.S.C. § 7545(o)(2)(A)(i) .....	3, 33, 34
42 U.S.C. § 7545(o)(2)(A)(iii).....	3, 33
42 U.S.C. § 7545(o)(2)(B) .....	3
42 U.S.C. § 7545(o)(2)(B)(i) .....	3
42 U.S.C. § 7545(o)(2)(B)(i)(I) .....	2
42 U.S.C. § 7545(o)(2)(B)(i)(IV) .....	3
42 U.S.C. § 7545(o)(2)(B)(ii) .....	3
42 U.S.C. § 7545(o)(3)(A).....	3, 5, 41

42 U.S.C. § 7545(o)(3)(B) .....	3, 41
*42 U.S.C. § 7545(o)(3)(B)(i) .....	3, 11, 33, 34, 35, 41
42 U.S.C. § 7545(o)(5).....	7
42 U.S.C. § 7545(o)(5)(A)-(C) .....	5
42 U.S.C. § 7545(o)(5)(C) .....	7, 23
42 U.S.C. § 7545(o)(5)(D).....	6, 26
42 U.S.C. § 7545(o)(7)(A).....	3, 4, 5, 17, 36
42 U.S.C. § 7545(o)(7)(D).....	9, 36
*42 U.S.C. § 7545(o)(7)(D)(i) .....	4, 5, 9, 10, 16, 17, 20, 53
42 U.S.C. § 7545(o)(7)(D)-(F).....	3
42 U.S.C. § 7545(o)(9)(A)(ii) .....	49
42 U.S.C. § 7545(o)(9)(B) .....	49
42 U.S.C. § 7545(o)(9)(B)(i) .....	6
42 U.S.C. § 7607(b) .....	1
*42 U.S.C. § 7607(b)(1) .....	30, 51
42 U.S.C. § 7607(d)(1)(E) .....	12
42 U.S.C. § 7607(d)(4)(B)(ii) .....	46
42 U.S.C. § 7607(d)(6)(C) .....	53
42 U.S.C. § 7607(d)(7)(A).....	46
*42 U.S.C. § 7607(d)(7)(B).....	25, 52, 58

42 U.S.C. § 7607(d)(8).....	48
42 U.S.C. § 7607(d)(9)(A).....	12
42 U.S.C. § 7607(d)(9)(C).....	12

## **CODE OF FEDERAL REGULATIONS**

40 C.F.R. pt. 80.....	1
*40 C.F.R. § 80.1405(c).....	49, 51, 52
40 C.F.R. § 80.1415 .....	8
40 C.F.R. §§ 80.1425-29.....	6
40 C.F.R. § 80.1426(a).....	6
40 C.F.R. § 80.1426(c)(3).....	57
40 C.F.R. § 80.1426(e).....	6
40 C.F.R. § 80.1427(a).....	6
40 C.F.R. § 80.1427(a)(1).....	7
40 C.F.R. § 80.1427(a)(3).....	4
40 C.F.R. § 80.1427(a)(5).....	7
40 C.F.R. § 80.1427(a)(6).....	7
40 C.F.R. § 80.1429(b) .....	6
40 C.F.R. § 80.1441 .....	49
40 C.F.R. § 80.1442 .....	49
40 C.F.R. § 80.1452(b) .....	57

## FEDERAL REGISTER

72 Fed. Reg. 23,900 (May 1, 2007).....	7, 8, 27, 28, 29, 39
74 Fed. Reg. 24,904 (May 26, 2009).....	48
75 Fed. Reg. 14,670 (Mar. 26, 2010).....	7, 27, 30, 37, 48
75 Fed. Reg. 76,790 (Dec. 9, 2010).....	37
76 Fed. Reg. 38,844 (July 1, 2011).....	50
77 Fed. Reg. 1320 (Jan. 9, 2012).....	37, 50
77 Fed. Reg. 59,458 (Sept. 27, 2012) .....	8
78 Fed. Reg. 9282 (Feb. 7, 2013) .....	5, 10, 18, 22, 25, 39, 42, 47, 49, 50, 54, 55, 57
78 Fed. Reg. 49,794 (Aug. 15, 2013).....	1, 9, 10, 11, 12, 18, 19, 20 21, 22, 23, 24, 26, 27, 28, 29, 36, 37, 38, 43, 44, 47, 51, 52, 54, 55, 56
78 Fed. Reg. 71,732 (Nov. 28, 2014).....	30

## **GLOSSARY**

AFPM	American Fuel & Petrochemical Manufacturers
API	American Petroleum Institute
CAA	Clean Air Act
E10	Gasoline blend with no more than 10% ethanol content
E85	Gasoline blend containing 51% to 83% ethanol content
EIA	Energy Information Administration
EISA	Energy Independence and Security Act of 2007
EMTS	EPA Moderated Transaction System
EPA	Environmental Protection Agency
NPRA	National Petrochemical & Refiners Association
PBF	PBF Holding Company LLC
RFS	Renewable Fuel Standards
RIN	Renewable Identification Number

## **JURISDICTION**

On August 15, 2013, EPA published a final rule establishing Renewable Fuel Standards for 2013. 78 Fed. Reg. 49,794 (to be codified at 40 C.F.R. pt. 80)) (JA790-827) (“2013 RFS Rule”). Petitioners Monroe Energy, LLC (“Monroe”), American Petroleum Institute (“API”) and American Fuel and Petrochemical Manufacturers (“AFPM”) timely filed petitions for judicial review. The Court has jurisdiction under the Clean Air Act (“CAA” or “Act”), 42 U.S.C. § 7607(b).

## **STATEMENT OF ISSUES**

1. Whether EPA reasonably determined not to reduce the volume of total renewable fuel that the Act requires to be sold or introduced into commerce in 2013, where a combination of renewable fuels and renewable fuel credits were available to permit compliance with the statutory volume.
2. Whether EPA was authorized to establish the 2013 renewable fuel standards and apply them to the entire 2013 calendar year after it missed the statutory deadline for promulgating those standards.
3. Whether it was reasonable and procedurally proper for EPA to consider updated Energy Information Administration data in calculating the final standards when public comments on the proposal had urged it to do so, and to adhere to its established regulations by adjusting the final standards to account for a small business refiner exemption.



4. Whether the Court should sever and stay further litigation concerning the cellulosic biofuel standard given EPA’s decision to grant reconsideration of that standard. Alternatively, whether EPA reasonably explained and applied its methodology for projecting the amount of cellulosic biofuel that would be produced in 2013.

## **STATEMENT OF FACTS**

### **I. STATUTORY BACKGROUND**

In 2005, and again in 2007, Congress amended the CAA to establish a Renewable Fuel Standards (“RFS”) program, now codified at 42 U.S.C. § 7545(o). See Energy Policy Act of 2005, Pub. L. No. 109-58, 119 Stat. 495 (2005); Energy Independence and Security Act of 2007 (“EISA”), Pub. L. No. 110-140, 121 Stat. 1492 (2007). Congress enacted the RFS program to “move the United States toward greater energy independence and security” and to “increase the production of clean renewable fuels,” among other purposes. 121 Stat. 1492. To accomplish these purposes, Congress specified increasing annual “applicable volumes” of four categories of renewable fuel—total renewable fuel, advanced biofuel, cellulosic biofuel, and biomass-based diesel—to be used in the transportation sector, 42 U.S.C. § 7545(o)(2)(B)(i)(I), and directed that EPA establish a compliance

program and annual percentage standards to ensure that the applicable volumes are used each year.<sup>1</sup> Id. §§ 7545(o)(2)(A)(i), (iii), 7545(o)(3)(B)(i).

To calculate the annual percentage standards, EPA divides the applicable volume for each type of renewable fuel established in the Act or determined by EPA pursuant to the Act, id. § 7545(o)(2)(B), (7)(A), (7)(D)-(F), by the Energy Information Administration’s (“EIA’s”)<sup>2</sup> estimate of the national volume of transportation fuel that will be sold or introduced into commerce in that year. Id. § 7545(o)(3)(A). Refiners and importers of gasoline and diesel fuel—“obligated parties”—apply the percentage standards to their own annual production or importation of gasoline and diesel to calculate their individual renewable volume obligations for each type of renewable fuel. EPA must determine the standards for each calendar year by November 30 of the prior year. Id. § 7545(o)(3)(B).

The percentage standards for each of the renewable fuels are “nested,” meaning that more specific forms of renewable fuel are considered to be a subset of broader categories of such fuel. Specifically, advanced biofuel is a subset of renewable fuel, and cellulosic biofuel and biomass-based diesel are two subsets of

---

<sup>1</sup> The Act specifies applicable volumes for renewable fuel, advanced biofuel, and cellulosic biofuel for each year through 2022; EPA must determine the applicable volumes for subsequent years. Id. § 7545(o)(2)(B)(i), (ii). For biomass-based diesel, the Act specifies applicable volumes only through 2012, with EPA to establish the volumes thereafter. Id. § 7545(o)(2)(B)(i)(IV).

<sup>2</sup> The EIA is part of the United States Department of Energy and is the primary federal government authority on energy statistics and analysis.

advanced biofuel. See id. § 7545(o)(1)(B), (D), (E), (J). A nested renewable fuel may be used by obligated parties to satisfy the broader category of renewable fuels of which it is a part. Id.; 40 C.F.R. § 80.1427(a)(3). For example, any renewable fuel that meets the definition of cellulosic biofuel may be used to satisfy the individual standard for cellulosic biofuel, as well as the standards for advanced biofuel and total renewable fuel.

The Act allows EPA to reduce the applicable volumes specified in the statute in certain circumstances. The Act contains a general waiver provision that allows EPA to reduce the statutory volume of any type of renewable fuel where there is inadequate domestic supply or where compliance would cause severe economic or environmental harm. 42 U.S.C. § 7545(o)(7)(A). In addition, for the cellulosic biofuel volume, the Act requires that EPA undertake an annual evaluation of anticipated cellulosic biofuel production, and that:

[f]or any calendar year for which the projected volume of cellulosic biofuel production is less than the minimum applicable volume established under paragraph (2)(B), as determined by the Administrator based on the estimate provided under paragraph (3)(A), not later than November 30 of the preceding calendar year, the Administrator shall reduce the applicable volume of cellulosic biofuel required under paragraph (2)(B) to the projected volume available during that calendar year.

Id. § 7545(o)(7)(D)(i). The “estimate provided under paragraph (3)(A)” refers to an estimate the EIA provides to EPA by October 31 of each year of “the volumes of transportation fuel, biomass-based diesel, and cellulosic biofuel projected to be

sold or introduced into commerce in the United States” in the following calendar year. Id. § 7545(o)(3)(A).

Thus, for cellulosic biofuel, EPA must conduct an annual evaluation and determine the projected production volumes. If EPA’s projection is lower than the applicable volume specified in the statute, EPA must use its lower projected production volume to establish the cellulosic biofuel requirements for the next calendar year. If EPA lowers the applicable volume for cellulosic biofuel, EPA is also authorized—but not required—to lower the applicable volumes for advanced biofuel and renewable fuel by the same or a lesser volume.<sup>3</sup> Id. § 7545(o)(7)(D)(i). Unlike the other waiver provisions in the statute, this provision does not list any specific factors that EPA must consider in determining whether to lower the advanced biofuel or total renewable fuel applicable volumes. Compare id., with id. § 7545(o)(7)(A).

The Act also contains provisions to ease the regulatory burden on obligated parties. For example, it requires EPA to establish a credit trading program to allow obligated parties who overcomply in one year to apply credits toward compliance in a subsequent year or to sell the credits to another obligated party, which can then use them for its own compliance. Id. § 7545(o)(5)(A)-(C). Obligated parties may

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<sup>3</sup> EPA has interpreted this provision as authorizing EPA to reduce the applicable volumes for both total renewable fuel and advanced biofuel by the same amounts. See, e.g., 78 Fed. Reg. 9282, 9295 (Feb. 7, 2013).

also carry a deficit forward to the next year, which must then be satisfied together with the next year's compliance obligation. Id. § 7545(o)(5)(D). The statute also allows small refineries to apply “at any time” for a hardship exemption. Id. § 7545(o)(9)(B)(i).

## **II. REGULATORY BACKGROUND**

### **A. Renewable Identification Numbers**

The RFS regulations do not require obligated parties to actually blend renewable fuel themselves. Instead, the producers and importers of renewable fuels generate renewable identification numbers, or “RINs,” for each gallon of renewable fuel they import or produce for use in the United States.<sup>4</sup> 40 C.F.R. § 80.1426(a). RINs are “assigned” to batches of renewable fuel by the producers and importers of renewable fuel, and may only be “separated” from those batches by an obligated party or other entity that blends the renewable fuel into conventional fuel. Id. §§ 80.1426(e), 80.1429(b). Once separated, RINs may be kept for compliance or sold. See id. §§ 80.1425-29. Obligated parties comply with their renewable volume obligations by accumulating RINs and then “retiring” them in an annual compliance demonstration. Id. § 80.1427(a).

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<sup>4</sup> Monroe errs in asserting that RINs are generated at the time that renewable fuel is blended. Monroe Br. 4.

RINs form the basis for the statutorily-required credit trading program described above. See 42 U.S.C. § 7545(o)(5). Excess or “carryover” RINs are equivalent to credits and can be used to meet up to twenty percent of an obligated party’s compliance obligation in the following year.<sup>5</sup> See 40 C.F.R. § 80.1427(a)(1), (5). The RIN system gives obligated parties flexibility in determining how they will demonstrate compliance. Obligated parties can buy the renewable fuel from the producer with the RIN, blend the renewable fuel with their gasoline or diesel, and retain the RIN. 72 Fed. Reg. 23,900, 23,942 (May 1, 2007) (final rule implementing original RFS program). Alternatively, they can buy the renewable fuel with the RIN, sell the renewable fuel to another party, and retain the RIN. See id. They can also simply buy RINs from other parties, without buying or blending any renewable fuel. See id.; see also 75 Fed. Reg. 14,670, 14,722 (Mar. 26, 2010) (final rule implementing revised RFS program). Separated RINs can be bought either through a RIN spot market or through contract arrangements. Id. Moreover, RINs can be purchased at whatever time prior to the annual compliance demonstration deadline that the obligated party decides is most advantageous. In this way, the RIN compliance program “allows the renewable fuels market to continue operating according to natural market forces” that will

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<sup>5</sup> The Act provides that obligated parties may use “credits” resulting from over-compliance in one year for up to twelve months after the credits are generated. 42 U.S.C. § 7545(o)(5)(C). EPA determined that the two-year RIN life is consistent with this provision. 72 Fed. Reg. at 23,909; 40 C.F.R. § 80.1427(a)(6).

keep renewable fuel costs at a minimum, 72 Fed. Reg. at 23,933, allowing obligated parties a means to “economically comply” with the standards by avoiding, if they wish, expenditures on infrastructure or changes in blending practices. Id. at 23,904, 23,908, 23,930.

## **B. The 2013 RFS Rule**

In the 2013 RFS Rule, EPA: (1) determined the 2013 applicable volumes for cellulosic biofuel, advanced biofuel, and total renewable fuel;<sup>6</sup> and (2) set the annual percentage standards for cellulosic biofuel, biomass-based diesel, advanced biofuel, and renewable fuels that apply to all motor vehicle gasoline and diesel produced or imported in 2013. These volumes and standards are set forth below:

	2013 Applicable Volumes	Final Percentage Standards for 2013
Cellulosic biofuel	6 million ethanol equivalent gallons <sup>7</sup>	0.004
Biomass-based diesel	1.28 billion gallons (1.92 billion ethanol equivalent gallons)	1.13
Advanced biofuel	2.75 billion ethanol equivalent gallons	1.62
Renewable fuel	16.55 billion ethanol equivalent gallons	9.74

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<sup>6</sup> EPA determined the applicable volume of biomass-based diesel in a prior rulemaking action. 77 Fed. Reg. 59,458 (Sept. 27, 2012).

<sup>7</sup> The percentage standards are intended to be met with ethanol-equivalent volumes of renewable fuel. See 40 C.F.R. § 80.1415. A gallon of ethanol counts as one gallon of renewable fuel for purposes of compliance with the percentage standards, while a gallon of other biofuels may count as more than a gallon for compliance purposes, depending on its energy content as compared to ethanol. See id.

See 78 Fed. Reg. at 49,798 (Table I.B.3-1, I.B.3-2).

To determine the volume requirement for cellulosic biofuel under 42 U.S.C. § 7545(o)(7)(D), EPA evaluated many factors, including EIA's October 2012 projection of anticipated cellulosic biofuel production, an updated May 8, 2013 EIA projection, the status of cellulosic biofuel production facilities, and public comments received on the proposed rule. 78 Fed. Reg. at 49,800, 49,803, 49,809; JA88 (October 2012 projection); JA936 (May 2013 update). EPA ultimately determined that 6 million ethanol-equivalent gallons was a reasonable projection of actual 2013 cellulosic biofuel production volume. 78 Fed. Reg. at 49,809. Because EPA's projected production volume for 2013 was lower than the 2013 statutory volume of 1.0 billion gallons, EPA derived the 2013 cellulosic biofuel percentage standard based on its projection of 6 million ethanol-equivalent gallons. 42 U.S.C. § 7545(o)(7)(D)(i).

EPA next considered whether it should lower the 2013 statutory volumes for advanced biofuel and total renewable fuel. Because EPA lowered the volume for cellulosic biofuel by 994 million gallons, EPA had the discretion—but was not required—to lower the volumes for advanced biofuel and renewable fuel to the same or a lesser extent. *Id.* § 7545(o)(7)(D)(i); 78 Fed. Reg. at 49,810.

The Act does not identify any specific criteria that EPA must consider when determining whether and how to reduce the advanced biofuel and renewable fuel



applicable volumes when there is a reduction in the cellulosic biofuel volume. 42 U.S.C. § 7545(o)(7)(D)(i). EPA thus exercised its discretion to identify and consider pertinent criteria. EPA first considered the availability of advanced biofuels to satisfy the advanced biofuel applicable volume. EPA analyzed feedstock availability, infrastructure constraints, domestic production of advanced biofuels, the availability of imported Brazilian sugarcane ethanol—as well as public comments addressing these factors—to determine that sufficient advanced biofuels would be available to satisfy the 2013 applicable volume. 78 Fed. Reg. at 49,812-20.

EPA also solicited comments on whether the statutory volumes should be adjusted to reflect the ethanol “blendwall.” 78 Fed. Reg. at 9301. The “blendwall” generally refers to the total volume of ethanol that can be consumed either as “E10”—gasoline with no more than 10 percent ethanol content—or in higher ethanol blends such as E15 or E85, given various legal and market constraints. See id.; id. at 49,809 & n.30.<sup>8</sup> Some commenters expressed concern about the blendwall and whether the 2013 applicable volumes would require consumption of more ethanol than could reasonably be absorbed by the market. Id. at 49,820. To

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<sup>8</sup> The “E10 blendwall” is less than the total ethanol blendwall, representing only the volume of ethanol that can be consumed domestically as E10. E10 is generally available to consumers and may be used throughout the domestic vehicle fleet, whereas higher ethanol blends may legally be used in subsets of the domestic vehicle fleet and generally are less readily available to consumers. See id. at 49,821-22.

evaluate these comments, EPA considered the extent to which “excess” biomass-based diesel (*i.e.*, exceeding the biomass-based diesel applicable volume) could be produced to satisfy the total renewable fuel applicable volume. Id. at 49,813-15, 49,822. EPA also considered the potential for greater use of high-ethanol blends like E85 (containing 51% to 83% ethanol), and the amount of 2012 carryover RINs available to demonstrate 2013 compliance. Id. at 49,820-23 . EPA determined that adequate volumes of 2013 renewable fuel production and 2012 carryover RINs were available to meet the 2013 applicable volume of total renewable fuel, that the blendwall was not a barrier to compliance, and that other concerns raised by commenters also did not warrant lowering the statutory volumes. Id. at 49,822. Therefore, EPA determined that the 2013 applicable volumes for total renewable fuel and advanced biofuel set forth in the statute should be retained. Id.

EPA promulgated the final 2013 RFS rule on August 15, 2013, which the Agency acknowledged was after the statutory deadline of November 30, 2012. 42 U.S.C. § 7545(o)(3)(B)(i). EPA identified two options for ensuring that applicable volumes of renewable fuel would be used in 2013, notwithstanding the lateness of the rule. The first option, which EPA ultimately chose, was to apply the percentage standards to all gasoline and diesel fuel produced or imported in 2013. 78 Fed. Reg. at 49,799. EPA determined that this option was more consistent with its statutory obligation to “ensure” that transportation fuel “on an annual average

basis” contains the statutory volumes of renewable fuel, and that it had provided adequate notice of this approach as well as adequate lead time for obligated parties to comply. Id. at 49,799-800. EPA also extended the compliance deadline to June 30, 2014, in view of the delayed issuance of the final rule. Id. at 49,800. Under the second alternative, EPA would have ensured the use of the applicable volumes by establishing higher percentage standards applicable solely to the portion of 2013 after the effective date of the final rule. Id. at 49,799-800. EPA determined, however, that this option was less consistent with statutory language, could unfairly burden obligated parties that produced or imported more conventional fuel during the latter portion of 2013, and was not an option of which obligated parties were fairly on notice. Id. EPA therefore applied the 2013 percentage standards to the entire calendar year. Id. at 49,800, 49,824.

### **STANDARD OF REVIEW**

Under the CAA, the Court may reverse EPA’s action only if it is “arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law,” or “in excess of statutory jurisdiction, authority, or limitations, or short of statutory right.” 42 U.S.C. § 7607(d)(1)(E), (d)(9)(A), (C). This standard is narrow, and the Court does not substitute its judgment for EPA’s. Bluewater Network v. EPA, 370 F.3d 1, 11 (D.C. Cir. 2004). Where EPA has considered the relevant factors and articulated a rational connection between the facts found and the choices made, its

regulatory choices must be upheld. Motor Vehicle Mfrs. Ass’n v. State Farm Mut. Auto. Ins. Co., 463 U.S. 29, 43 (1983); see also Lead Indus. Ass’n v. EPA, 647 F.2d 1130, 1160 (D.C. Cir. 1980) (“That the evidence in the record may also support other conclusions, even those that are inconsistent with the [EPA] Administrator’s, does not prevent [the court] from concluding that his decisions were rational and supported by the record.”) (citations omitted).

To the extent review of EPA’s final rule necessitates interpretation of the Act, the Court must apply the Act’s plain language where it reflects “the unambiguously expressed intent of Congress.” Chevron, U.S.A., Inc. v. NRDC, Inc., 467 U.S. 837, 842-43 (1984). Where the Act is “silent or ambiguous with respect to the specific issue,” however, the Court must defer to EPA’s interpretation if it is “based on a permissible construction of the statute.” Id.

## **SUMMARY OF ARGUMENT**

The 2013 RFS rule represents a reasonable exercise of EPA’s broad discretion under the Act, when it reduces the applicable statutory volume of cellulosic biofuel for a given calendar year, to determine whether it should *also* reduce the statutory volumes of total renewable fuel and advanced biofuel. For 2013, EPA determined that it should *not* alter those volumes. The record supports EPA’s decision, and the Agency thoroughly explained its reasoning and carefully addressed all of the issues raised in public comments, ultimately concluding that

obligated parties can and should comply with standards based on the total renewable fuel and advanced biofuel volumes established by Congress for 2013.

Petitioners raise a host of legal and record-based objections to EPA's decision, none of which warrant setting EPA's reasonable judgment aside.

Contrary to Petitioner Monroe's argument, for example, the record supports EPA's reasonable decision to retain the total renewable fuel applicable volume because the availability of renewable fuels and RINs demonstrated that obligated parties' ability to comply with that volume was not in doubt. In its further arguments that the 2013 standards must be vacated simply because EPA missed the statutory deadline for issuing them, and that EPA may not apply those standards to the entire calendar year, Monroe attempts to resurrect threshold legal questions that the Court already decided in EPA's favor when it upheld the 2010 RFS rule, which also was promulgated after the relevant statutory deadlines. The Court should apply that precedent and reject Monroe's threshold legal challenges. Moreover, the record reflects that EPA considered the potential concerns associated with applying the 2013 standards to the entire calendar year under the particular circumstances of this rulemaking, and reasonably concluded that it would be appropriate to do so.

API's and AFPM's additional challenges concerning EPA's use of updated data from the Energy Information Administration ("EIA") and its adjustment of the standards to reflect the granting of a small refinery exemption also lack merit. As

to the EIA data, not only did EPA's proposal inform the public that the Agency would supplement EIA's October 2012 estimate with later-developing data, but many commenters—including Petitioners—specifically *asked* EPA to do so with respect to portions of the October 2012 estimate that they believed were no longer accurate. It was reasonable, therefore, for EPA to follow the logic of Petitioners' own comments by requesting an updated estimate from EIA before promulgating the final standards. Moreover, EPA's existing regulations *required* that it adjust the standards to reflect any small refinery exemptions granted before promulgating the final rule. EPA had done this in prior years and its proposal made clear that it would do the same thing in 2013. Accordingly, these additional objections provide no basis to set aside the rule.

Finally, the Court should not reach the merits of Petitioners' challenges to the 2013 cellulosic biofuel standard. As explained more fully in a separate, unopposed procedural motion, EPA recently granted API's and AFPM's petitions for reconsideration of that standard, which raise the same issues as are presented in their briefs. EPA will conduct a further rulemaking proceeding for the purpose of reconsidering the cellulosic biofuel standard, which may moot Petitioners' objections. Accordingly, rather than address these issues, the Court should sever them, assign them a new case number, and hold that case in abeyance pending the completion of reconsideration proceedings.

## ARGUMENT

### **I. EPA’S DECISION NOT TO REDUCE THE TOTAL RENEWABLE FUEL APPLICABLE VOLUME FOR 2013 WAS REASONABLE.**

Because EPA reduced the statutory applicable volume for cellulosic biofuel for 2013, EPA was authorized, but not required, to reduce the applicable volumes of advanced biofuel and total renewable fuel by the same or a lesser amount. EPA reasonably chose not to do so.

#### **A. EPA Reasonably Exercised Its Discretion to Evaluate the Feasibility and Impact of Retaining the Statutory Volumes.**

The Clean Air Act provides that for any year that EPA reduces the cellulosic biofuel applicable volume, EPA “may also reduce the applicable volume of renewable fuel and advanced biofuels requirement . . . by the same or a lesser volume.” 42 U.S.C. § 7545(o)(7)(D)(i). This provision does not identify any specific criteria that EPA must consider in deciding whether to reduce the applicable volumes. Rather, the *only* stated limitation on EPA’s discretion is that a reduction under this authority cannot exceed the amount of the cellulosic biofuel reduction for that calendar year. *Id.* This provision thus indicates that Congress intended to confer broad discretion on EPA both to identify and weigh factors that may be relevant to its analysis in deciding whether to reduce the applicable volumes in a given calendar year. *See Entergy Corp. v. Riverkeeper, Inc.*, 556 U.S. 208, 222-23 (2009) (absence of statutorily-defined factors demonstrated

Congress' intent to confer greater discretion on EPA); Sierra Club v. Jackson, 648 F.3d 848, 856 (D.C. Cir. 2011) (same).

The fact that other waiver provisions in the Act *do* direct EPA to consider specific criteria when deciding whether to reduce applicable volume requirements further demonstrates that EPA's discretion under Section 7545(o)(7)(D)(i) is, by comparison, especially broad. Compare id., with 42 U.S.C. § 7545(o)(7)(A) (EPA may reduce applicable volumes in the event of severe economic or environmental harm or inadequate domestic supply), and id. § 7545(o)(7)(F) (EPA may reduce applicable volumes in 2016 and beyond based on criteria in § 7545(o)(2)(B)(ii)). Section 7545(o)(7)(D)(i) itself mandates that the cellulosic biofuel volume reduction be based on a projection of the amount to be produced, while imposing no similar condition on EPA's decision whether to reduce the advanced biofuel and total renewable fuel volumes. Id.; see also API v. EPA, 706 F.3d 474, 476, 481 (D.C. Cir. 2013) (contrasting discretion in reducing advanced biofuel and total renewable fuel with "explicit instruction" on determining volume of cellulosic biofuel). The absence of statutory criteria in Section 7545(o)(7)(D)(i) for reducing the advanced biofuel and total renewable fuel applicable volumes thus stands in marked contrast to the specific directions that the Act provides elsewhere, further indicating that Congress did not intend to constrain EPA's discretion under this provision. See Catawba Cnty., N.C. v. EPA, 571 F.3d 20, 36 (D.C. Cir. 2009)



(“[A] congressional mandate in one [statutory] section and silence in another often suggests not a prohibition but simply a decision not to mandate any solution in the second context, i.e., to leave the question to agency discretion.”) (internal quotation and citation omitted); accord 78 Fed. Reg. at 9284-85 & 49,810-11.<sup>9</sup>

In making its decision, EPA turned first to the availability of advanced biofuels to satisfy the advanced biofuel statutory volume of 2.75 billion ethanol equivalent gallons. EPA determined that a minimum of 1.92 billion ethanol-equivalent RINs would be generated and used to satisfy the separately-determined biomass-based diesel standard.<sup>10</sup> 78 Fed. Reg. at 49,812. Because the biomass-based diesel standard is “nested” within the advanced biofuel standard, these biomass-based diesel RINs also count toward the advanced biofuel volume. Id.

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<sup>9</sup> For these reasons, Petitioner-Intervenor PBF Holding Company LLC’s (“PBF’s”) argument that “the *only* criterion that Congress intended EPA to consider in deciding whether to reduce the applicable volumes of advanced biofuels and total renewable fuels . . . is the ‘projected volume available’ of these fuels in the following calendar year” is flawed. PBF Br. 24 (emphasis in original). Nothing in the Act imposes such a constraint on the factors EPA may reasonably consider in exercising its discretion.

<sup>10</sup> For the purposes of this rule, EPA assumed that the biomass-based diesel applicable volume of 1.28 billion gallons was composed entirely of biodiesel, which has an ethanol-equivalence value of 1.5 per gallon. Supra note 6; 78 Fed. Reg. at 49,812 (Table III.B-2). Using this equivalence value, compliance with the biomass-based diesel standard would yield 1.92 billion ethanol-equivalent gallons to satisfy the advanced biofuel standard. Id. If renewable diesel (with its higher equivalence value) were used to satisfy a portion of the biomass-based diesel standard, this number would be larger. Id.

(Table III.B-2). After also including the small expected contribution of cellulosic biofuel toward the advanced biofuel volume, EPA determined that approximately 0.83 billion additional ethanol-equivalent gallons would be needed. Id. EPA then projected there was the potential for well over 1.0 billion gallons of additional advanced biofuels in the form of “excess” biomass-based diesel, sugarcane ethanol, and other advanced biofuels—more than enough to address this 0.83 billion-gallon shortfall. Id. at 49,797, 49,812-20. Therefore, EPA concluded that there would be sufficient volumes of fuel produced or imported in 2013 to satisfy the statutory volume for advanced biofuel. Id. at 49,812, 49,823.

EPA next evaluated the availability of renewable fuel to satisfy the total renewable fuel applicable volume of 16.55 billion ethanol-equivalent gallons, including comments concerning whether sufficient volumes of ethanol could be used given the constraints posed by the blendwall. Id. at 49,820-21. To evaluate these comments, EPA considered, as a worst case, a hypothetical situation where no additional biomass-based diesel beyond the statutory requirement and no blending of ethanol into E85 were available to satisfy the total renewable fuel applicable volume. Id. at 49,821. In that situation, 13.1 billion gallons of renewable ethanol could be used in E10. Id. This, combined with the minimum required amount of biodiesel, would leave a shortfall of approximately 1.4 billion

gallons needed to satisfy the total renewable fuel applicable volume. See id. at 49,822.

EPA determined, however, that 2.6 billion 2012 carryover RINs were available for use in 2013—nearly *twice* the amount that would be needed under the worst case scenario. Id. at 49,821-22. EPA additionally determined that this worst case scenario was unlikely to occur because obligated parties could use increased volumes of biodiesel and E85 to meet the statutory volumes. Id. at 49,821. Therefore, EPA reasonably determined that the applicable volume of total renewable fuel could be met and that the blendwall would not pose a compliance problem. Id.

Some stakeholders suggested that EPA use the criteria specified in the Act's other waiver provisions to decide whether to lower the advanced biofuel and total renewable fuel applicable volumes under Section 7545(o)(7)(D)(i). 78 Fed. Reg. at 49,810. In addition, some stakeholders raised objections to EPA's proposed decision to retain the statutory volumes. See generally id. at 49,813-20 (addressing comments on advanced biofuel), 49,820-22 (addressing comments on total renewable fuel). In response, EPA concluded that nothing precluded it from considering other statutory criteria at its discretion, but that it was not *required* to do so. Id. at 49,810-11. EPA then considered and responded to comments that implicated these other criteria, but reasonably concluded that the issues raised in

these comments did not warrant reducing the advanced biofuel or total renewable fuel volumes. Id. at 49,814-15, 49,822.

PBF does not challenge the reasonableness of EPA’s responses to these comments. Rather, it claims EPA was not clear about whether there are particular circumstances that would make it appropriate to rely on criteria from the other waiver provisions and—to the extent there are such circumstances—failed to define them. See PBF Br. 27-31.<sup>11</sup> However, the fact that EPA did not provide a comprehensive list of the factors that it potentially “could have” considered does not render EPA’s exercise of its broad discretion under Section 7545(o)(7)(D)(i) arbitrary. EPA’s obligation was to “articulate [] a satisfactory explanation for its action including a rational connection between the facts found” and its decision not to reduce the advanced biofuel and total renewable fuel volumes. API, 706 F.3d at 481 (quoting State Farm, 463 U.S. at 43). The record demonstrates that EPA met this burden, as it clearly identified the factors it found to be dispositive, declined to base its decision on other factors including several suggested by commenters, and provided a reasonable explanation for these determinations. See generally 78 Fed. Reg. at 9295-301; id. at 49,813-22; see also State Farm, 463 U.S. at 48 (agency

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<sup>11</sup> None of the Petitioners claims that EPA failed to clearly articulate the factors it relied on. Because an intervenor cannot raise issues outside the scope of the Petitioners’ challenges, the Court should disregard pages 27 to 31 of PBF’s brief. See National Ass’n of Clean Water Agencies v. EPA, 734 F.3d 1115, 1160-61 (D.C. Cir. 2013).

must “cogently explain why it has exercised its discretion in a given manner”).

Contrary to PBF’s contention, nothing more is required, and the cases PBF cites do not hold otherwise. See, e.g., FEC v. Democratic Senatorial Campaign Comm., 454 U.S. 27, 37 (1981); American Lung Ass’n v. EPA, 134 F.3d 388, 392 (D.C. Cir. 1998).

**B. EPA’s Decision Not to Reduce the 2013 Statutory Volume for Total Renewable Fuel Is Consistent With the Purposes of the RFS Program.**

Monroe and PBF argue that EPA’s decision to retain the applicable volumes based in part on the availability of 2012 carryover RINs is arbitrary and capricious because EPA’s decision promotes no statutory purpose and improperly interferes with the RIN credit system. Monroe Br. 14, 20; PBF Br. 32-36. To the contrary, EPA’s decision to retain the statutory volumes furthers Congress’ intent because it promotes the greater use of renewable fuels in 2013; moreover, it does not interfere with obligated parties’ use of RINs to demonstrate compliance.

EPA retained the Act’s total renewable fuel volume in part because more than enough 2012 carryover RINs were available to make compliance possible.<sup>12</sup> 78 Fed. Reg. at 49,822. In making this decision, EPA reasonably assumed that all

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<sup>12</sup> EPA also determined that the increased use of E85 and biomass-based diesel would be available to help satisfy the total renewable fuel requirement. 78 Fed. Reg. at 49,822. Petitioners do not challenge this determination. EPA’s decision to retain the statutory volumes based in part on the potential for increased use of these renewable fuels certainly promotes the Act’s purposes.

available 2012 carryover RINs would be used for compliance in 2013 because they would otherwise expire and be of no value.<sup>13</sup> See id. Reducing the applicable volumes, therefore, could not reasonably be expected to influence the amount of 2012 carryover RINs used for compliance. Instead, had EPA reduced the statutory volumes, the result would simply have been lower volume obligations, with the same amount of excess 2012 RINs used to satisfy those obligations, and, in turn, a lesser requirement for the production and use of renewable fuel in 2013. EPA's consideration of carryover RINs in retaining the applicable volumes thus advances the statutory goal to promote the use of renewable fuels.<sup>14</sup> See Pub. L. No. 110-140, 121 Stat. at 1492; see also API, 706 F.3d at 479.

Contrary to PBF's argument, EPA did not, in considering carryover RINs, exceed its authority under Section 7545(o)(7)(D)(i) by usurping the flexibility

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<sup>13</sup> As discussed infra, EPA also reasonably considered that some 2013 RINs would be "banked" for use in 2014. 78 Fed. Reg. at 49,822.

<sup>14</sup> PBF claims that, because carryover RINs "represent renewable fuel production in 2012," requiring their use "for compliance purposes in 2013 does nothing to increase the total amount of renewable fuel that is produced and consumed in 2013," and therefore does nothing to promote statutory goals. PBF Br. 36. Taken to its logical conclusion, PBF effectively argues that *any* consideration of carryover RINs—which, by definition, always represent the *prior* year's use of renewable fuel—is unrelated to a statutory purpose. This argument ignores, however, that Congress expressly *mandated* the establishment of a credit trading system. 42 U.S.C. § 7545(o)(5)(C). There is no question, then, that the use of carryover RINs is related to a statutory purpose, and even PBF supports the flexibility engendered by the Act's credit trading provisions. See PBF Br. 33-34.

granted to obligated parties by the RIN system. PBF Br. 32-35. Nothing in the 2013 rule limits obligated parties' ability to make their own choices about whether to sell excess RINs or save them for future compliance. Far from "managing" the RIN system or "mandating" the use of carryover RINs, PBF Br. 34, EPA reasonably considered that some 2013 RINs would be retained for future use, and that 2012 carryover RINs would be used for compliance or else expire.<sup>15</sup> 78 Fed. Reg. at 49,822.

More importantly, while Petitioners are correct that Congress intended to provide compliance flexibility to obligated parties, this is an *implementation* goal. The overall *substantive* purpose of the statute is to promote the production and use of renewable fuels. While the RFS program maintains a degree of compliance flexibility that is consistent with the achievement of these larger statutory purposes, Petitioners' suggestions would make compliance flexibility the overriding consideration while sacrificing *actual* renewable fuel use. This cannot possibly be what Congress intended.

### **C. EPA Reasonably Considered the Banking and Pricing of RINs.**

Monroe further argues that EPA failed to consider that a maximum number of RINs may be banked in 2013 (*i.e.*, carried over to 2014 rather than used for

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<sup>15</sup> Indeed, Monroe's comments acknowledged that "the life of the 2012 RINs will expire at the end of 2013." JA759.

2013 compliance), and also failed to adequately consider a rise in RIN prices. Monroe's arguments are procedurally deficient to the extent that they were not raised in comments and are, moreover, unsupported by the record.

Monroe first claims EPA failed to consider that obligated parties with excess 2013 RINs would likely bank the maximum permissible amount for use in 2014; therefore, Monroe argues, the 2013 RIN market will be billions of RINs short. Monroe Br. 15-17. EPA's proposed rule described how it would consider carryover RINs in determining whether to reduce the statutory volumes, 78 Fed. Reg. at 9301, yet neither Monroe nor anyone else suggested that EPA's analysis was flawed because it did not assume the maximum banking of 2013 RINs. See, e.g., Monroe Energy, LLC Comments, Apr. 7, 2013 (JA683). Under the CAA, "[o]nly an objection to a rule or procedure which was raised with reasonable specificity during the period for public comment . . . may be raised during judicial review." 42 U.S.C. § 7607(d)(7)(B); see also Mossville Env'tl. Action Now v. EPA, 370 F.3d 1232, 1238-40 (D.C. Cir. 2004). Here, because neither Monroe nor any other party commented that EPA should assume maximum 2013 RIN-banking, Monroe's argument is waived.

Furthermore, even if this argument could be considered, Monroe provides no support for its speculation that the market will be billions of RINs short. Indeed, Monroe's assertion is contrary to evidence in the record that 2012 and 2013 RINs



were being sold on the market prior to issuance of the final rule in August of 2013. 78 Fed. Reg. at 49,822 (discussing RIN prices from January through March 2013). Moreover, while EPA acknowledged that it could not predict how many 2013 RINs would be banked for 2014 compliance, EPA reasonably determined that RIN-banking would not impede compliance in 2013, because more than enough 2012 carryover RINs—almost *twice* the amount of any shortfall in total renewable fuel under the worst case scenario—were available.<sup>16</sup> Id. Based on these considerations, EPA reasonably decided to retain the statutory volumes.

Monroe’s further argument that EPA failed to adequately consider increasing RIN prices is unsupported. Monroe Br. 17-18. In the final rule, EPA evaluated comments suggesting that RIN price increases indicated that the E10 blendwall had been reached, and that obligated parties would have difficulty complying with the 2013 standards. 78 Fed. Reg. at 49,822. EPA recognized that the approaching E10 blendwall and obligated parties’ anticipation of future RIN scarcity were contributing factors to the price increases. Id. But EPA appropriately discounted the speculation behind this rise in RIN prices by

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<sup>16</sup> Even if some parties were not able to acquire enough RINs to meet their statutory obligations, obligated parties also have the option to carry over a deficit in 2014. 42 U.S.C. § 7545(o)(5)(D).

reasonably determining that sufficient volumes of renewable fuel and carryover RINs were available to satisfy the unreduced applicable volumes.<sup>17</sup> Id.

Monroe’s claim that EPA should have reduced the 2013 applicable volumes because of the economic impact of RIN prices on independent refiners ignores the compliance flexibility built into the RIN system. Monroe Br. 18-20. Obligated parties, including independent refiners, may acquire RINs by purchasing renewable fuel with attached RINs and retaining the RINs after selling or blending the renewable fuel, or by purchasing separated RINs on the RIN spot market or through contract arrangements. See 72 Fed. Reg. at 23,929, 23,933; 75 Fed. Reg. at 14,722. Its status as an independent refiner does not mandate that Monroe purchase only separated RINs, as Monroe contends. Rather, Monroe, like all obligated parties, can choose how and when to acquire RINs to comply with the RFS program. To the extent Monroe chooses—for economic or other reasons—to limit itself to purchasing RINs on the market, that choice is its own, not one forced by EPA’s rule.

For this reason, Monroe’s contention that EPA’s decision to retain the 2013 total renewable fuel applicable volume is inconsistent with “the purpose of the credit system established by Congress,” because it does not “preserve[] the natural market forces and blending practices that will keep renewable fuel costs at a

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<sup>17</sup> As Monroe recognizes, RIN prices have fallen since EPA issued the final 2013 rule. Monroe Br. 10.

minimum,” is misplaced. Monroe Br. 20-21 (citing 72 Fed. Reg. at 23,929).

Monroe cites no legislative history, but instead quotes a statement EPA made in its 2007 rulemaking. There, EPA explained that the RIN trading scheme minimizes compliance costs because obligated parties have multiple ways, discussed above, to obtain RINs and comply with the program, rather than necessarily having to blend renewable fuels themselves. 72 Fed. Reg. at 23,929. However, EPA’s past statements about the efficiency of the compliance program are irrelevant to this Court’s review. The 2013 rule did not in any way amend the RFS compliance program, and Monroe has the same ability now to choose the most economical compliance option as it did when the program was established in 2007.

In addition, EPA evaluated the impact of increasing RIN prices on the overall transportation fuels market and the participants in that market. 78 Fed. Reg. at 49,822. Specifically, EPA considered comments suggesting that high RIN prices were a burden for some obligated parties, and would lead to a significant increase in the cost of transportation fuel for consumers. Id. EPA agreed that “high RIN prices may impact individual fuel market participants differently.” Id. However, EPA disagreed with commenters suggesting that high RIN prices could lead to an increase in export of gasoline and diesel, since any one refiner’s decision to increase exports to avoid high RIN costs would likely be offset by another refiner’s decision to increase production or importation to fill any unmet domestic

demand. Id. EPA also disagreed with commenters that high RIN prices would lead to higher consumer fuel costs. Id. EPA determined that, because the cost of renewable fuel had remained stable despite the rise in RIN prices, increased RIN prices would not lead to increased prices to consumers. See id. EPA thus considered the economic concerns raised by commenters regarding RIN prices and their effect on market participants, but ultimately determined these comments did not justify reducing the statutory applicable volumes.

Contrary to Monroe's arguments, that EPA has indicated it may adjust the 2014 statutory volumes, based on very different facts (including much higher statutory volumes), has no bearing on the Court's review of the 2013 rule. Monroe Br. 22. In addition, the fact that EPA could have, but did not revisit here its earlier decision to designate refiners and importers as "obligated parties" is no basis to set aside the 2013 standards. See id. 19 (asserting that independent refiners "are in no position to ensure, or even contribute to, growth in the use of renewable fuels by blenders") (internal quotation omitted); id. 22-23. EPA determined in its 2007 rulemaking that refiners and importers, not blenders, would be the obligated parties required to meet each calendar year's volume requirements. See 72 Fed. Reg. at 23,924 ("[A] blender who only blends renewable fuels downstream from the refinery or importer is not subject to the renewable fuel obligation."). EPA considered altering this approach in its 2010 rule, but decided to retain the original

approach. 75 Fed. Reg. at 14,722. Accordingly, the time for judicial challenges to that determination under 42 U.S.C. § 7607(b)(1) has long since run. Id.; see also Portland Cement Ass’n v. EPA, 665 F.3d 177, 189 (D.C. Cir. 2011) (challenge to pollutant-by-pollutant approach for setting national emission standards for hazardous air pollutants was barred “because it was not raised within sixty days of EPA’s first use of that approach”) (internal citation omitted).

Moreover, that some commenters in this rulemaking advocated that EPA change the designation of obligated parties is not a basis to find the issue “reopened” for purposes of judicial review. The statutory time limit for review may only be deemed reopened with respect to issues that EPA “either explicitly or implicitly reconsider[s]” in a subsequent rulemaking. West Virginia v. EPA, 362 F.3d 861, 872 (D.C. Cir. 2004). Here, EPA did not propose to revisit its earlier designation of obligated parties, nor did it request comments on that issue.<sup>18</sup> Monroe’s contention that EPA could have done so to reduce the alleged burden on independent refiners is therefore outside the scope of this Court’s review.

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<sup>18</sup> Monroe recently petitioned EPA to modify the 2010 rule’s designation of obligated parties—and simultaneously petitioned for judicial review—asserting that the new administrative petition is based on grounds arising in EPA’s pending 2014 RFS rulemaking. See 78 Fed. Reg. 71,732 (Nov. 29, 2013) (proposed 2014 rule); Monroe v. EPA, No. 14-1014 (D.C. Cir. Jan. 28, 2014).

## **II. THE 2013 STANDARDS ARE NOT IMPERMISSIBLY LATE OR RETROACTIVE.**

Monroe next argues that the 2013 RFS are unlawful because they were issued after the statutory deadline and impose compliance obligations for the first eight months of 2013, before the standards took effect. Monroe Br. 23-24. This Court rejected a similar argument in National Petrochemical & Refiners Association (“NPRA”) v. EPA, 630 F.3d 145 (D.C. Cir. 2010), and the same result should follow here.

### **A. The Court’s Retroactivity Analysis Should Be Guided By the 2010 NPRA Decision.**

In NPRA, the Court reviewed EPA’s 2010 rulemaking implementing the Energy Independence and Security Act (“EISA”) of 2007, which amended the existing RFS program enacted in 2005. The EISA, among other changes, increased the volume requirements for renewable fuel, added new definitions and volume requirements for advanced biofuel, biomass-based diesel, and cellulosic biofuel, and required EPA to revise its regulations to implement these changes by December 19, 2008. NPRA, 630 F.3d at 146, 149.

EPA’s final regulations implementing the EISA, which became effective on July 1, 2010, set the 2010 percentage standards for cellulosic biofuel, advanced biofuel, biomass-based diesel, and total renewable fuel and applied those standards to the entire 2010 calendar year, including the six months preceding the rule’s

effective date. Id. at 151. Because EPA missed the statutory deadline for promulgating the EISA regulations and setting the 2009 standards, and the pre-existing RFS program did not allow for implementation of the separate 2009 biomass-based diesel standard, the 2010 rule also combined the 2009 and 2010 statutory volumes of biomass-based diesel in deriving the biomass-based diesel percentage standard. Id.

Similar to Monroe's contentions, NPRA argued that EPA could not lawfully require use of the 2009 applicable volume of biomass-based diesel because EPA had missed the applicable statutory deadline.<sup>19</sup> Id. at 152. NPRA also argued that EPA's decision to apply the 2010 percentage standards to gasoline and diesel production and imports for the entire 2010 calendar year, not just the six months following the rule's effective date, made the rule "impermissibly retroactive." Id. at 158.

The Court disagreed, concluding that EPA had authority to promulgate the standards after the statutory deadline had passed, id. at 154-58, and that the Agency had "clear albeit implicit" authority to apply the late-issued standards to the entire 2010 calendar year, id. at 163. On both issues, the Court focused on language in the statute stating that EPA "shall" promulgate the relevant

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<sup>19</sup> Although the NPRA Court focused on EPA's authority to issue a combined 2009/2010 standard for biomass-based diesel after missing the statutory deadline to establish 2009 renewable fuel standards, EPA also had missed the deadline for issuing *all* 2010 standards.

implementing regulations to “ensure” that the calendar year statutory applicable volumes are met, and specifying that those regulations “shall contain compliance provisions” to do so “[r]egardless of the date of promulgation.” 42 U.S.C. § 7545(o)(2)(A)(i), (iii); NPRA, 630 F.3d at 153, 163. The Court found that this language, together with other statutory provisions and consistent with relevant case law, supported EPA’s authority to issue a late rule and to apply it retroactively. Id. at 158, 163, 166. For the reasons discussed below, the Court’s reasoning and conclusions in NPRA fully support EPA’s action here.

**B. This Case Is Indistinguishable In Relevant Respects From NPRA.**

**1. EPA has the authority to issue the 2013 annual percentage standards after the statutory deadline.**

As in NPRA, EPA has the authority to issue the 2013 standards regardless of the missed deadline. Monroe contends that the NPRA holding only applies to EPA’s initial rulemaking implementing the EISA and should not be “extended” to subsequent annual rules. Monroe Br. 24. But NPRA logically controls here as well, because the pertinent statutory text similarly authorizes and obligates EPA to promulgate regulations which “ensure” that the applicable volumes are met in each calendar year. Specifically, under 42 U.S.C. § 7545(o)(3)(B)(i), EPA “shall determine,” by November 30 of each year, the renewable fuel percentage standard “that ensures” that the statutory applicable volume requirements “are met” for the following calendar year. Id. This language mirrors the directives in 42 U.S.C §



7545(o)(2)(A)(i), which were at issue in NPRA. Moreover, as with Section 7545(o)(2)(A)(i), Congress did not specify the consequences of EPA’s late promulgation of the annual percentage standards under Section 7545(o)(3)(B)(i). See NPRA, 630 F.3d at 154. Nothing in the Act suggests EPA loses its authority and is relieved of its obligation under Section 7545(o)(3)(B)(i) to promulgate percentage standards “ensuring” that the applicable volume requirements for a calendar year “are met” if it misses the statutory deadline to do so. Accord NPRA, 630 F.3d at 158. Absent an *express* statutory provision for loss of authority, EPA is authorized to act regardless of delay. Id. at 154-55 (discussing cases).

**2. EPA has the authority to retroactively apply the 2013 annual percentage standards to the entire calendar year and did so reasonably.**

NPRA also supports EPA’s application of the 2013 annual standards to the entire 2013 calendar year. Monroe argues that EPA may not apply its annual standards retroactively. Monroe Br. 24. Generally, courts are reluctant to find authority to implement retroactive rules absent an express statutory grant. NPRA, 630 F.3d at 162. However, this Court recognized in NPRA that “[t]here may be an exception for situations in which the statute prescribes a deadline by which particular rules must be in effect’ and the agency misses the deadline.” Id. at 162-163 (quoting Sierra Club v. Whitman, 285 F.3d 63, 68 (D.C. Cir. 2002) (in turn quoting Bowen v. Georgetown Univ. Hosp., 488 U.S. 204 (1988) (Scalia, J.

concurring)). While the NPRA Court considered some indicia of Congressional intent regarding retroactivity specific to the 2010 implementing regulations, 630 F.3d at 163, the Court also noted that retroactive application of the 2010 rule fulfilled EPA’s statutory obligation to “ensure” that the Act’s volume requirements are satisfied. Id.; see also id. at 166 (EPA adequately examined the retroactive effects of the 2010 rule “in determining how to best carry out Congress’ mandate that it ‘ensure’ the applicable volume requirement for 2009 is met”). Considering these factors, the Court found that EPA had the “clear albeit implicit authority” to engage in retroactive rulemaking to effectuate this statutory purpose.<sup>20</sup> Id. at 163.

The same result follows here. Under Section 7545(o)(3)(B)(i), EPA continues to be bound by the statutory imperative to “ensure” the applicable volumes are met in issuing its annual standards. Monroe’s attempt to limit the reasoning of NPRA to the 2010 rulemaking therefore fails. Under NPRA, EPA may reasonably apply the annual standards retroactively to achieve this statutory purpose.

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<sup>20</sup> The NPRA Court also considered, but did not decide, whether the 2010 rule’s late issuance only gave rise to “secondary” retroactivity—*i.e.*, whether it merely “upset[] expectations based in prior law” without “impos[ing] new sanctions on past conduct.” Id. at 159 (internal quotations and citation omitted). Such a rule does not require specific statutory authorization of retroactive effects and is “invalid only if arbitrary and capricious.” Id. Given the far more limited sweep of EPA’s 2013 rule (one year’s standards) as compared to 2010 (substantially revising the RFS program and imposing both 2009 and 2010 standards), the 2013 rule may be even more readily characterized as imposing, at most, only secondary retroactive effects. Nonetheless, the Court again need not resolve this issue.

Monroe also argues that even if EPA is authorized to apply the 2013 standards retroactively, it did so in an arbitrary manner. Monroe Br. 24-26. As in the 2010 rulemaking, however, EPA reasonably weighed the burden of any retroactive effects on obligated parties against the benefit of fulfilling the purposes of the statute. 78 Fed. Reg. at 49,799; see NPRA, 630 F.3d at 164-65.

First, EPA concluded that obligated parties had reasonable notice that EPA would act in the manner specified in the final rule. 78 Fed. Reg. at 49,799; accord NPRA, 630 F.3d at 165. The RFS regulatory program as amended by the EISA has been in effect for three years, and obligated parties have been aware of the 2013 statutory volumes for cellulosic biofuel, advanced biofuel, and total renewable fuels since the EISA was enacted in 2007. In addition, prior to publishing its 2013 RFS proposal, EPA already had established the 2013 biomass-based diesel volume in a separate rulemaking.<sup>21</sup> While it is always possible in any given year that EPA “may” reduce the statutory volumes, no such reduction is mandated. See 42 U.S.C. § 7545(o)(7)(A), (D). Thus, to the extent that any party formed “expectations” about what it would have to do to comply in 2013, it reasonably should have considered at least the *possibility* that EPA would derive standards that retained the 2013 statutory volumes of advanced biofuel and total renewable fuel, as EPA had done in 2010, 2011 and 2012. See generally 75 Fed.

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<sup>21</sup> Supra note 6.

Reg. at 14,675 (2010 RFS); 75 Fed. Reg. 76,790 (Dec. 9, 2010) (2011 RFS); 77 Fed. Reg. 1320 (Jan. 9, 2012) (2012 RFS).

Consistent with this past practice, and as it had proposed in February 2013, EPA's final rule for 2013 retained the statutory volumes of advanced biofuel and total renewable fuel. 78 Fed. Reg. at 49,799. The final rule also established a lower projected volume of cellulosic biofuel than EPA had proposed; thus, any *change* in the final rule "operate[d] to relieve burden on obligated parties." Id. Finally, EPA explained that, following NPRA, obligated parties were aware that EPA would likely apply late-issued standards derived from the statutory volumes to all gasoline and diesel produced in that calendar year. Id. at 49,800. EPA therefore reasonably concluded that obligated parties had sufficient notice of their 2013 obligations, despite the late issuance of the rule. Id.

EPA further determined that obligated parties had adequate "lead time" to comply with the standards. Id. EPA explained that because obligated parties can achieve compliance by obtaining RINs, they do not need lead time for construction or investment purposes. Id.; see NPRA, 630 F.3d at 165. Rather, obtaining RINs involves contractual or other arrangements that do not require a longer lead time. 78 Fed. Reg. at 49,800. Moreover, EPA observed that renewable fuel producers had been generating 2013 RINs, and obligated parties had been acquiring them, since the beginning of the calendar year. Id.; see NPRA, 630 F.3d at 165. EPA

also extended the compliance deadline to June 30, 2014, in view of the final rule's late issuance. 78 Fed. Reg. at 49,800; see NPRA, 630 F.3d at 165.

Finally, EPA considered and reasonably rejected the option of issuing numerically higher percentage standards based solely on the production of gasoline and diesel fuel in the latter months of 2013. 78 Fed. Reg. at 49,800. EPA determined that such an approach would be both inconsistent with the statutory provision indicating that compliance is on an "annual average basis," and unfair to obligated parties that produced or imported higher volumes of transportation fuel later in the year rather than earlier. Id. EPA thus concluded that it could best promote the statutory purposes of the RFS program by applying the 2013 standards to the entire 2013 calendar year. Id. at 49,799. By considering all of these factors, EPA "adequately examined the claimed retroactive effects of the Final Rule in determining how to best carry out Congress' mandate that it 'ensure' the applicable volume requirement[s]" for 2013 are met. NPRA, 630 F.3d at 166.

**C. Monroe's Remaining Arguments Are Meritless.**

In light of EPA's reasoned approach, Monroe's remaining arguments are unfounded. Monroe's claim that retroactive application of the 2013 standards does not "ensure" that the statutory volume requirements are satisfied because of the blendwall's constraints on 2013 renewable fuel use is without merit. Monroe Br. 24. For the reasons discussed above, retaining the statutory volumes based in part

on the availability of carryover RINs promotes the production and use of renewable fuels in 2013. Supra Argument I.B. Monroe also provides no support for its statement that the standards should be vacated because market forces would naturally lead to the use of as much ethanol as possible in the absence of the 2013 RFS. Monroe Br. 24. Had Congress considered this a likely scenario, it would not have enacted the RFS program in the first place. As EPA has previously explained, regardless of the particular market forces at work, the RFS program “provides the certainty that at least a minimum amount of renewable fuel will be used in the U.S., which in turn provides some certainty for investment in production capacity of renewable fuels.” 72 Fed. Reg. at 23,903.

Moreover, Monroe’s assertion that it could not have expected that EPA would retain the volume requirements because EPA requested comments on the blendwall is contrary to the record. Monroe Br. 24-25. EPA’s proposed rule preamble plainly stated that it did not propose to lower the advanced biofuel and total renewable fuel volumes *despite* possible blendwall constraints. 78 Fed. Reg. at 9301. Likewise, EPA’s final rule did not lower those statutory volumes. Id. at 49,797. Soliciting comment on the blendwall issue cannot be construed as signaling intent to lower the statutory volumes when EPA proposed *not* to do so. In short, Monroe cannot credibly contend that it was unfairly surprised or unable to make business decisions because of uncertainty about compliance obligations.

Finally, the remedy Monroe seeks—vacatur of the 2013 rule—is inconsistent with the statute and NPRA. Monroe Br. 23, 26. As discussed above, it would be contrary to the statutory purpose for EPA to abandon the 2013 standards simply because it missed the statutory deadline for issuing them. See NPRA, 630 F.3d at 156. And any other remedy—for instance, vacating and remanding the 2013 rule to EPA—would only result in the same retroactive application of the rule that Monroe complains of here.

In short, any retroactive effects of this rule were implicitly authorized by Congress and were reasonably considered by EPA. Therefore, EPA’s decision should be upheld.

### **III. THE FINAL STANDARDS REASONABLY ACCOUNTED FOR CHANGES IN THE ENERGY INFORMATION ADMINISTRATION’S ESTIMATE AND A SMALL REFINERY EXEMPTION.**

Petitioners API and AFPM take issue with EPA’s consideration of an updated estimate it received from the Energy Information Administration (“EIA”) on May 18, 2013. API/AFPM Br. 15-19. Petitioners further challenge EPA’s adjustment of the final standards to account for a small refinery exemption it granted after issuing the proposed rule. Id. at 20-21. Both of these determinations, however, were consistent with the approaches that EPA’s proposal indicated the Agency would take, thus putting obligated parties fairly on notice; and, since no commenter raised the concerns that Petitioners assert here, these challenges are

therefore waived. Moreover, both of these instances reflect a reasonable decision by EPA to account for updated data, and in neither case did the update make a significant difference in the final standards.

**A. EPA Reasonably Considered EIA’s Updated Estimate.**

As noted above, 42 U.S.C. § 7545(o)(3)(A) provides that, “not later than October 31 of [each calendar year], [EIA] shall provide to [EPA] an estimate, with respect to the following calendar year, of the volumes of transportation fuel, biomass-based diesel, and cellulosic biofuel projected to be sold or introduced into commerce in the United States.” *Id.* The statute then provides: “Not later than November 30 of [each calendar year], *based on the estimate provided under subparagraph (A)*, [EPA] shall determine and publish in the Federal Register, with respect to the following calendar year, the renewable fuel obligation that ensures that the requirements of paragraph (2) are met.” *Id.* § 7545(o)(3)(B)(i) (emphasis added).

Each EIA estimate includes three data points—the total amount of transportation fuel and the amounts of biomass-based diesel and cellulosic biofuel projected to be sold or introduced into commerce in the coming year. The Act treats all of this information similarly; that is, EPA is to “determine” the RFS obligations for each year “based on” the EIA estimate. 42 U.S.C. § 7545(o)(3)(B). The Court recently interpreted this statutory requirement in the context of a



challenge to the 2012 cellulosic biofuel standard. API, 706 F.3d at 478. The Court held that the Act “[p]lainly . . . [does not] contemplate slavish adherence by EPA to the EIA estimate”; had Congress so intended, “it could have skipped the EPA ‘determination’ altogether.” Id. Instead, “EPA [i]s entitled . . . to read the phrase ‘based on’ as requiring great respect but allowing deviation consistent with that respect.” Id. Accordingly, the Court upheld EPA’s supplementation of EIA’s estimate with information EPA received from prospective biofuel producers—including information submitted after EPA had received EIA’s estimate—for the purpose of “determin[ing]” the 2012 cellulosic biofuel standard. Id.<sup>22</sup>

In this rulemaking, EPA’s proposed rule preamble (published approximately two weeks after API), discussed the API decision and explained how EPA would appropriately use the discretion acknowledged in API to determine the 2013 RFS obligations “based on” EIA’s estimate. 78 Fed. Reg. at 9293-94; see also JA88 (October 2012 EIA estimate). Importantly, EPA’s proposal further made clear that the final 2013 rule would *not* rely *solely* on EIA’s October 2012 estimate and the other information EPA had developed or received prior to the proposal. Rather, EPA also would “continue to monitor the progress of the cellulosic biofuel industry, in particular the progress of the companies which form the basis of our proposed 2013 volume projection.” Id. at 9295.

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<sup>22</sup> The Court remanded the 2012 cellulosic biofuel standard on other grounds. Id. at 479-80.

In response to the proposed rule, EPA did not receive any comments asserting that it would be improper for EPA to consider more recent EIA information than was included in the October 2012 estimate. To the contrary, Petitioners API and AFPM argued that EPA should *ignore* the October 2012 EIA estimate altogether for purposes of the cellulosic biofuel standard, and instead should establish a standard at either zero or up to 21,093 gallons based on actual production rates in 2012. See JA464-65 (AFPM); JA505-06 (API). Additionally, Petitioners and many other obligated parties specifically cited an updated and downwardly-revised cellulosic biofuel projection by EIA as support for their arguments that EPA should set a lower cellulosic biofuel standard than had been proposed. See 78 Fed. Reg. at 49,804 & n.26 (noting comments asserting that a February 26, 2013 article on EIA’s website forecasting that cellulosic production “could grow to more than 5 million gallons in 2013” should be used to lower EPA’s proposed cellulosic standard); see also, e.g., JA504 (API); JA460 (AFPM); JA683 (Monroe, adopting AFPM comments); JA153 (Marathon Petroleum Co., LP).

“To ensure that [EPA was] using the most up to date information,” as it previously had indicated it would do—and consistent with Petitioners’ and other commenters’ suggestion that the October 2012 EIA estimate was no longer current—“EPA requested and received from EIA an updated projection of

cellulosic biofuel production in 2013 on May 8, 2013.” 78 Fed. Reg. at 49,804-05 & n.27; see also JA936 (May 2013 EIA estimate). The May 2013 EIA estimate projected 4 million actual gallons of cellulosic biofuel production in calendar year 2013, a substantial reduction from the 9.6 million actual gallons EIA had projected in its October 2012 estimate. Compare 78 Fed Reg. at 49,805 (citing the May 2013 projected figure), with id. at 49,804 at Table II.C.2 (tabulating EIA’s October 2012 projections). As Petitioners had requested, EPA determined the applicable volume for cellulosic biofuel for 2013 based on this updated EIA estimate, in conjunction with other appropriate information. See generally id. at 49,804-09. However, the May 2013 estimate also included lower projections of the total volumes of gasoline and diesel fuel that would be used in 2013. See JA937. Just as it used EIA’s revised cellulosic volume estimate, EPA used these additional revised estimates from EIA in setting the percentage standards for all four categories of renewable fuel. As Petitioners note, the decrease in the estimate of total gasoline and diesel fuel to be used in 2013 had the effect of *increasing* the 2013 renewable fuel *percentage* requirements for each obligated party. API/AFPM Br. 16-17.

For several reasons, Petitioners’ challenges to EPA’s use of EIA’s revised estimates should be rejected. First, to the extent Petitioners claim that it was unlawful for EPA to base its determination of annual percentage requirements on

any EIA estimate other than that provided in October 2012,<sup>23</sup> that claim stands in marked contrast to their own comments *asking* EPA to rely on the downward revision of EIA’s cellulosic volume projection. Furthermore, API dispelled any notion that the statute somehow prohibits EPA from supplementing EIA’s October estimate with additional pertinent information for the purpose of “determining” the calendar year renewable fuel standards. There, the Court held that it was permissible for EPA to supplement its analysis of the October EIA estimate with “statements from cellulosic biofuel facility owners,” noting that those same biofuel producers are “a principal source of EIA’s estimates.” 706 F.3d at 478. If EPA may consider supplemental information from EIA’s underlying data sources, surely it may also consider an updated estimate from EIA itself. Likewise, if EPA may consider updated EIA estimates of cellulosic biofuel production, as the Petitioners advocated when they submitted their rulemaking comments, then surely EPA may also reasonably consider other updated portions of EIA’s estimate, including its projections of total gasoline and diesel fuel use. The contrary view Petitioners now assert in their brief would require EPA to strictly adhere to the October estimate even if that document no longer accurately states EIA’s

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<sup>23</sup> See API/AFPM Br. 15 (arguing that EPA “impermissibly . . . switched to a lower EIA estimate of the total volume of transportation fuel”).

projections, an absurd result and one that flies in the face of API's holding that EPA need not "slavish[ly] adhere[]" to the October estimate. 706 F.3d at 478.

Second, Petitioners' procedural objection to EPA's use of the May 2013 EIA estimate—*i.e.*, that they did not have the opportunity to comment on it, API/AFPM Br. 16, 18-19—is without merit because the discussion in EPA's proposed rule preamble fairly notified interested parties that EPA intended to supplement the October 2012 EIA estimate with updated information, as shown above.<sup>24</sup> See API, 706 F.3d at 478. The Court has long held that "an agency may use supplementary data, unavailable during the notice and comment period, that expands on and confirms information contained in the proposed rulemaking and addresses alleged deficiencies in the pre-existing data, so long as no prejudice is shown." Solite Corp. v. EPA, 952 F.2d 473, 484 (D.C. Cir. 1991) (internal quotations and alterations omitted). In this case, having received comments specifically advocating that the Agency use updated EIA projections of cellulosic biofuel production, it was appropriate for EPA both to follow the commenters' specific

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<sup>24</sup> The Court should disregard the first paragraph on page 18 of API's and AFPM's brief, which relies on a document from the United States' interagency review process allegedly supporting Petitioners' assertion that the public was given no notice. API/AFPM Br. 18. Such documents are required to be placed in EPA's docket, 42 U.S.C. § 7607(d)(4)(B)(ii), but the Act expressly excludes them from the listed materials that constitute the administrative record for purposes of judicial review. See id. § 7607(d)(7)(A); see also New Mexico v. EPA, 114 F.3d 290, 295 (D.C. Cir. 1997) (denying motion to supplement record with documents in the public docket reflecting post-comment discussions EPA had with the Department of Energy and the White House Office of Management and Budget).

suggestion regarding cellulosic biofuel *and* to follow the *logic* of their suggestion by also using EIA’s revised projections of total gasoline and diesel fuel. See BASF Wyandotte Corp. v. Costle, 598 F.2d 637, 643 (1st Cir. 1979) (finding notice adequate where commenters suggested creating more subcategories for final rule, and EPA responded but decided to create *fewer* subcategories); accord Ne. Md. Waste Disposal Auth. v. EPA, 358 F.3d 936, 951 (D.C. Cir. 2004) (“Agencies [] are free. . . to modify proposed rules as a result of the comments they receive.”); Am. Frozen Food Inst. v. Train, 539 F.2d 107, 134-35 (D.C. Cir. 1976) (same).

Moreover, the differences between the proposed and final percentage standards that resulted, in part, from EPA’s revised estimate of total gasoline and diesel fuel use were minor: the total renewable fuels percentage went up slightly from 9.63% to 9.74%; the advanced biofuel percentage changed from 1.60% to 1.62%; the biomass-based diesel percentage changed from 1.12 to 1.13%; and the cellulosic biofuel percentage *decreased* from 0.008% to 0.004%. Compare 78 Fed. Reg. at 9286 (Table 1.B.3-2), with id. at 49,798 (Table 1.B.3-2). The mere fact that there was some change in the percentages does not, by itself, mean that the final rule was not a “logical outgrowth” of the proposal. Indeed, the 2010 rule upheld in NPRA involved comparable or greater increases in the final percentage standards as compared with the proposal—for example, the total renewable fuel percentage standard changed from 8.01% to 8.25% in the final 2010 rule, while the

advanced biofuel standard changed from 0.59% to 0.61%. Compare 74 Fed Reg. 24,904, 24,915 (May 26, 2009), with 75 Fed. Reg. at 14,718. If EPA were “required to adopt a final rule that is *identical* to the proposed rule,” it “could learn from the comments on its proposals only at the peril of subjecting itself to rulemaking without end.” Ne. Md. Waste Disposal, 358 F.3d at 951 (emphasis added, internal quotation and citation omitted); see also Am. Frozen Food, 539 F.2d at 135 n.51.<sup>25</sup>

Finally, the Court may only invalidate a rule due to an alleged procedural error “if the error [was] so serious and related to matters of such central relevance to the rule that there is a substantial likelihood that the rule would have been significantly changed if such errors had not been made.” 42 U.S.C. § 7607(d)(8); see, e.g., Portland Cement, 665 F.3d at 412. Petitioners do not identify any deficiency or inaccuracy in EIA’s revised estimate of total gasoline and diesel fuel use. Nor do they describe any additional comment they would have made concerning the May 2013 estimate, had they been given the opportunity, which might have led EPA not to determine the final percentage standards based on that estimate. Thus, even if a procedural error occurred, it was harmless.

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<sup>25</sup> Environmental Integrity Project v. EPA (cited in API/AFPM Br. 18) is inapposite. There, EPA proposed to codify one interpretation of its existing regulatory text, then adopted the *opposite* interpretation in the final rule. 425 F.3d 992, 997 (D.C. Cir. 2005). No comparable “flip-flop” occurred here. Id.

**B. EPA Properly Adjusted the Final Standards To Account For A Small Refinery Exemption Granted Before the Promulgation Date, As Required By Existing Regulations.**

In the Energy Policy Act of 2005, Congress temporarily exempted certain small refineries from RFS obligations through December 31, 2010. This provision was not modified by EISA. See 78 Fed. Reg. at 9302-03 (describing the history of the exemptions); 40 C.F.R. §§ 80.1441, 80.1442 (codifying the exemptions); see also 42 U.S.C. § 7545(o)(1) (defining “small refinery”). EPA subsequently extended the exemption through December 31, 2012 for certain small refineries based on the results of a Department of Energy study, as required by 42 U.S.C. § 7545(o)(9)(A)(ii). See 78 Fed. Reg. at 9303. EPA also is authorized to extend the temporary exemption for individual refineries on a case-by-case basis in response to petitions demonstrating disproportionate economic hardship. Prior to the 2013 rulemaking, EPA had granted several case-by-case exemptions for both the 2011 and 2012 calendar years. See id. Such petitions may be filed “at any time,” and EPA must act on them within 90 days. 42 U.S.C. § 7545(o)(9)(B).

EPA’s 2010 rule codified a provision requiring that the calculation of the final RFS percentage standards adopted for each calendar year take into account any small refiner exemptions granted for that year. See 40 C.F.R. § 80.1405(c).<sup>26</sup>

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<sup>26</sup> This provision identifies the equations used to calculate each of the four RFS percentage standards. Id. In each equation, quantities designated as “GE<sub>1</sub>” and “DE<sub>1</sub>,” respectively, are both subtracted from the denominator. Id. “GE<sub>1</sub>” and



Consistent with that requirement, EPA’s established practice in RFS rulemakings is that, “[i]f additional individual refinery requests for exemptions are approved following the release of [a proposed RFS rule], the final standards will be adjusted to account for those exempted volumes of gasoline and diesel.” 76 Fed. Reg. 38,844, 38,859 (July 1, 2011) (preamble to proposed 2012 rule); see also 77 Fed. Reg. at 1341 (adjustment in final 2012 rule).

In the February 2013 proposed rule preamble, EPA explained that it had “calculated the proposed 2013 standards without a small refinery/small refiner adjustment” because, “at [that] time, no exemptions ha[d] been approved for 2013.” 78 Fed. Reg. at 9303. However, EPA made clear that the calculation of the final 2013 standards would be adjusted accordingly in the event EPA granted any small refiner exemptions prior to promulgating the final rule:

[I]f an individual small refinery or small refiner requests an exemption and is approved following the release of this NPRM and prior to issuance of the final rule, the final standards will be adjusted upward to account for the exempted volumes of gasoline and diesel.

Id. EPA did not request comment on this approach or suggest that the Agency was in any way reevaluating it. Instead, EPA only requested comment on whether it would be appropriate to make *subsequent* changes to the 2013 standards “if small refiner exemptions are granted *after* the final rule is issued,” while noting that such

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“DE<sub>1</sub>” represent the amounts of gasoline and diesel fuel, respectively, “projected to be produced by exempt small refineries and small refiners in year i, in gallons, in any year they are exempt per §§ 80.1441 and 1442.” Id.

changes would be less than ideal in EPA’s view because “[p]eriodic revisions . . . to reflect waivers issued to small refineries or refiners would be inconsistent with the statutory text, and would introduce an undesirable level of uncertainty for obligated parties.” Id. (emphasis added). In the final rule, EPA adjusted the standards to account for one small refinery exemption that it had approved after the proposal and prior to promulgating the final rule, but determined that it would not make any *further* adjustments to the standards in the event it granted additional exemptions *after* promulgation. See 78 Fed. Reg. at 49,825 (“EPA has granted one exemption for 2013. However, any requests for exemption that are approved after the release of today’s final rulemaking will not affect the 2013 standards.”).

Petitioners now object to the final standards’ adjusted calculation based on the one small refiner exemption EPA approved before it promulgated the final rule. As shown above, a provision of EPA’s 2010 rule—codified at 40 C.F.R. § 80.1405(c)—*required* EPA to adjust the final 2013 standards in this manner. Thus, Petitioners’ quarrel is with the 2010 rule, and it is too late to challenge that rule here. See 42 U.S.C. § 7607(b)(1); supra at 30 (citing cases).

Even if EPA’s February 2013 proposal could somehow be construed to have reopened this issue—and it cannot since, as shown above, EPA specifically limited its request for comments to the issue of whether to revise the 2013 standards based on exemptions approved *after* promulgating them—Petitioners’ challenge would

still be waived for failure to raise it during the comment period. See 42 U.S.C. § 7607(d)(7)(B). None of the comments EPA received took issue with EPA’s statement in the proposed rule preamble that it would adjust the 2013 standards if it granted a smaller refinery exemption prior to promulgating the final rule.<sup>27</sup> Accordingly, this issue is not subject to judicial review.

In any event, granting the small refiner exemption made virtually no difference in the final percentage standards for 2013. By using the values for the equation terms in Table IV.B.3-1 of the final rule preamble, and assuming zeroes for the quantities “GE<sub>1</sub>” and “DE<sub>1</sub>,” it is possible to re-calculate the final 2013 percentage standards as if there had been no exemption. See 78 Fed. Reg. at 49,826; see also 40 C.F.R. § 80.1405(c) (explaining the equation terms). The result, if this exercise were performed, is that the cellulosic biofuel, biomass-based diesel, and advanced biofuel percentage standards would be unchanged, and the total renewable fuel standard would be negligibly reduced from 9.74% to 9.73%. Thus, granting the exemption, and then accounting for it in the final standards as

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<sup>27</sup> EPA acknowledged one commenter who it understood was “opposed to further extending exemptions to small entities,” but who further commented that, “lawfully, the standards must be adjusted *whenever* a waiver is granted.” 78 Fed. Reg. at 49,826 (emphasis added); accord JA224. While this comment may have disagreed with EPA’s decision *not* to revise the standards based on small refiner exemptions granted *after* promulgating the final rule—a decision that no party challenges here—it did not object to EPA’s position on the question for which Petitioners seek judicial review.

the existing regulations *required* EPA to do, had only a *de minimis* effect on the total renewable fuel standard and otherwise had no effect at all.

**IV. IF THE COURT DOES NOT STAY THE REMAINING ISSUES, IT SHOULD FIND THAT EPA’S PROJECTION OF CELLULOSIC BIOFUEL PRODUCTION IN 2013 WAS REASONABLE.**

Petitioners’ remaining challenges concern EPA’s determination of the volume of 2013 cellulosic biofuel under 42 U.S.C. § 7545(o)(7)(D)(i). API/AFPM Br. 22-34. As discussed more fully in EPA’s separate procedural motion filed concurrently with this brief, EPA has granted API’s and AFPM’s petitions for reconsideration of the 2013 cellulosic biofuel standard, based on the August 8, 2013 announcement by KiOR (a cellulosic biofuel producer) of reduced anticipated production in 2013. See Letters from Administrator Gina McCarthy to API and AFPM dated Jan. 23, 2014 (Attachments 1 & 2); see also API/AFPM Br. 27-28 (citing the August 8 announcement). Because EPA received this information after promulgating the final rule,<sup>28</sup> it is beyond the scope of this Court’s review. See 42 U.S.C. § 7607(d)(6)(C) (“The promulgated rule may not be based (in part or whole) on any information or data which has not been placed in the docket as of the date of such promulgation.”); API v. Costle, 609 F.2d 20, 24

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<sup>28</sup> The Administrator signed the final rule on August 6, 2013, 78 Fed. Reg. at 49,830, and released it to the public no later than August 7, 2013. See, e.g., <http://ens-newswire.com/2013/08/07/epa-2013-renewable-fuel-standards-slash-cellulosic-requirement/> (Aug. 7, 2013, Environment News Service article discussing the promulgated rule).

(D.C. Cir. 1979) (“date of such promulgation” means when the rule was signed and released to the public, *not* the date of Federal Register publication).

Rather than address the merits of Petitioners’ challenges, the Court should sever these issues and hold them in abeyance pending the outcome of Agency reconsideration proceedings. If the Court does consider the merits at this time, however, it should uphold EPA’s final rule as reasonable based on the record before the Administrator at the time of her decision.

**A. EPA Gave Notice of and Reasonably Explained and Applied Its Methodology for Projecting Cellulosic Production.**

As an initial matter, EPA’s final rule was a logical outgrowth of the proposal, notwithstanding Petitioners’ contention that a six-month straight-line ramp-up period EPA used to evaluate the expected cellulosic biofuel production at each facility was a “new benchmark methodology” not used in EPA’s proposal. API/AFPM Br. 28-32. To the contrary, EPA’s approach for projecting cellulosic biofuel production in both the proposed *and* final rules involved, *inter alia*, estimating the duration of and likely starting date for a hypothetical start-up period for each facility as well as the production levels likely to occur during that period. Moreover, EPA adequately explained this approach in both preamble statements. Compare 78 Fed. Reg. at 9291, 9293, with id. at 49,803, 49,806.

Petitioners’ dispute arises primarily from their belief that, after assuming *different* start-up schedules for each pertinent production facility (including a 12-

month start-up period at KiOR's facility) in the proposed rule, EPA instead assumed the *same* start-up schedule at each facility for the final rule—*i.e.*, a six-month straight line ramp-up to full-capacity production. API/AFPM Br. 32. Petitioners are mistaken. EPA did not rely on the hypothetical six-month ramp-up period to calculate the final projection of KiOR's 2013 cellulosic production. Rather, EPA used it only as an assumed "best-case scenario" for *comparison* to EPA's final projection, in order to evaluate the risk that EPA's projection might be overly optimistic. See 78 Fed. Reg. at 49,806 (noting that EPA's final projection was "significantly lower than . . . our best case scenario").

The projection of KiOR's 2013 production that EPA actually *used* for the final rule—three to four million actual gallons—was somewhat more conservative than KiOR's own revised estimate (three to five million), *id.*, just as EPA's proposed projection had been somewhat more conservative than KiOR's original estimate. See id. at 9291 (KiOr originally assumed a 9- to 12-month start-up period with production averaging 30 to 50 percent of capacity, while EPA's proposal assumed a 12-month start-up period with production averaging 30 percent of capacity). Likewise, EPA's projections of the INEOS Bio facility's 2013 production in both the proposed and final rules were somewhat more conservative than the company's own original and revised estimates. See id. at 9291, 49,806. Thus, EPA's approach was consistent in both the proposed and final rules.

Furthermore, it was reasonable for EPA to use mid-March as the starting date of the hypothetical six-month ramp-up period for purposes of the best-case scenario analysis (see API/AFPM Br. 23-25), because KiOR had made its first shipments of cellulosic biofuel to customers on March 18, 2013. 78 Fed. Reg. at 49,806. Even if EPA had used June 2013 as the starting date as Petitioners suggest, the resulting best-case scenario would have been approximately 4.67 million actual gallons (3.67 million from KiOR plus 1 million from INEOS Bio). The final rule projects only 4 million actual gallons of 2013 production, which is substantially below 4.67 million. Thus, the projected volume that EPA *actually used* in the final rule complied with EPA’s obligation to “aim[] at accuracy” in its projections. API, 706 F.3d at 479.

This conclusion is reinforced by the fact that EPA’s final projection was *identical* to EIA’s revised estimate in terms of actual gallons produced. 78 Fed. Reg. at 49,805. In API, the Court made clear that the Act does not require “near carbon-copy reliance on” EIA’s estimate. 706 F.3d at 480. Nonetheless, where EPA’s final projection does precisely match EIA’s, is more conservative than EPA’s estimated best-case scenario, *and* is more conservative than the producers’ own production forecasts, it can hardly be said to reflect an approach that “deliberately indulge[d] a greater risk of overshooting than undershooting.” Id. at 479.

**B. EPA Reasonably Considered KiOR's May 2013 Quarterly Update.**

Petitioners also contend that EPA should not have relied on a May 9, 2013 quarterly update by KiOR—in which KiOR communicated the production estimate of 3 to 5 million actual gallons noted above—based on subsequent “EPA Moderated Transaction System” (“EMTS”) data showing that KiOR fell short of its second quarter 2013 production goal. API/AFPM Br. 25-27. The EMTS data, however, only reflects production or importation of “renewable fuel” that generates RINs. See 40 C.F.R. § 80.1452(b). Thus, it does not track, for example, KiOR’s production of cellulosic “biocrude,” an intermediate product that must be further processed into finished renewable fuel. See 78 Fed. Reg. at 9291. Furthermore, RINs are generally assigned to a batch of renewable fuel at the time the producer sells it, not at the time of production. See 40 C.F.R. § 80.1426(c)(3). The EMTS does not keep a record of renewable fuel that has been produced but is being kept in storage rather than sold. Id. For these reasons, KiOR’s RIN generation rate during May and June 2013 would not necessarily be expected to match its production estimate for those months. Nonetheless, as explained above, EPA reasonably took into account any uncertainty by adopting a final projection that was more conservative than KiOR’s.



**C. Petitioners' Remaining Objections Require Exhaustion of the Reconsideration Process.**

Finally, Petitioners argue that they did not have an opportunity to comment on information EPA received after the close of the comment period. API/AFPM Br. 33-34. Where the “grounds for [an] objection arose after the period for public comment (but within the time specified for judicial review),” the Act requires exhaustion of the reconsideration process before seeking judicial review. 42 U.S.C. § 7607(d)(7)(B); Nat’l Ass’n of Clean Air Agencies v. EPA, 489 F.3d 1221, 1232 (D.C. Cir. 2007). Accordingly, the Court should dismiss the remainder of API’s and AFPM’s petitions.

**CONCLUSION**

For the foregoing reasons, the Court should deny the petitions for review.

Respectfully submitted,

ROBERT G. DREHER  
Acting Assistant Attorney General  
Environment & Natural Resources Division

Dated: February 4, 2014

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## **CERTIFICATE OF COMPLIANCE WITH WORD LIMITATION**

Pursuant to Federal Rule of Appellate Procedure 32(a)(7)(C), I hereby certify that the foregoing Brief of Respondent EPA contains 13,998 words as counted by the Microsoft Office Word 2007 word processing system, and thus complies with the type-volume limitations of Federal Rule of Appellate Procedure 32(a)(7)(B), excluding the parts of the brief exempted by Rule 32(a)(7)(B)(iii). This brief complies with the typeface requirements of Rule 32(a)(5) and the type style requirements of Rule 32(a)(6) because it has been prepared in a proportionally spaced typeface using Microsoft Word 2007 in Times New Roman and 14-point font.

/s/ Brian H. Lynk  
BRIAN H. LYNK

## **CERTIFICATE OF SERVICE**

I hereby certify that the foregoing Brief for Respondent EPA has been filed with the Clerk of the Court this 4th day of February 2014, using the CM/ECF System. True and correct copies were sent to each of the following counsel by electronic mail, in addition to service through the appellate CM/ECF system:

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Dated: February 4, 2014

/s/ Brian H. Lynk  
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THE ADMINISTRATOR OF THE ENVIRONMENTAL PROTECTION AGENCY

WASHINGTON, D.C. 20460

JAN 23 2014

Robert L. Greco III  
Group Director  
Downstream and Industry Operations  
American Petroleum Institute  
1220 L Street, NW  
Washington, D.C. 20005-4070

Dear Mr. Greco:

I am providing a partial response to your October 11, 2013, petition to the U.S. Environmental Protection Agency for reconsideration of the final rulemaking, "Regulation of Fuels and Fuel Additives: 2013 Renewable Fuel Standards; Final Rule," published in the *Federal Register* at 78 FR 49794 on August 15, 2013. In your petition, you requested reconsideration of the cellulosic biofuel standard for 2013 under the Renewable Fuel Standard program.

We have determined that your petition demonstrates that the statutory criteria for granting a petition for reconsideration are satisfied. Specifically, you have identified in your petition new information of central relevance that became available after the comment period closed but within the time period specified for judicial review. We believe that KiOR's August 8, 2013, announcement of reduced anticipated production in 2013, which your petition noted, justifies reconsideration of the 2013 cellulosic biofuel standard.

Therefore, we are granting your petition for reconsideration with regard to the 2013 cellulosic biofuel standard and will initiate a notice and comment rulemaking to reconsider this aspect of the rule.

Other objections to the cellulosic biofuel standard noted in your petition may be raised in the context of this future rulemaking if you continue to believe they are relevant. We will respond at a later date to components of your petition for reconsideration of the 2013 RFS rule that are related to matters other than the cellulosic biofuel standard.

We look forward to working with you and all stakeholders to continue implementing the RFS program. Should you have any questions, please contact Dallas Burkholder in the Office of Transportation and Air Quality at (734) 214-4766 or [burkholder.dallas@epa.gov](mailto:burkholder.dallas@epa.gov).

Sincerely,

Gina McCarthy

ATTACHMENT 1 TO BRIEF OF RESPONDENT EPA



THE ADMINISTRATOR OF THE ENVIRONMENTAL PROTECTION AGENCY

WASHINGTON, D.C. 20460

JAN 23 2014

Mr. Richard Moskowitz  
General Counsel  
American Fuel & Petrochemical Manufacturers  
1667 K Street, NW  
Washington, D.C. 20006

Dear Mr. Moskowitz:

I am providing a partial response to your October 10, 2013, petition to the U.S. Environmental Protection Agency for reconsideration of the final rulemaking, "Regulation of Fuels and Fuel Additives: 2013 Renewable Fuel Standards: Final Rule," published in the *Federal Register* at 78 FR 49794 on August 15, 2013. In your petition, you requested reconsideration of the cellulosic biofuel standard for 2013 under the Renewable Fuel Standard program.

We have determined that your petition demonstrates that the statutory criteria for granting a petition for reconsideration are satisfied. Specifically, you have identified in your petition new information of central relevance that became available after the comment period closed but within the time period specified for judicial review. We believe that KiOR's August 8, 2013, announcement of reduced anticipated production in 2013, which your petition noted, justifies reconsideration of the 2013 cellulosic biofuel standard.

Therefore, we are granting your petition for reconsideration with regard to the 2013 cellulosic biofuel standard and will initiate a notice and comment rulemaking to reconsider this aspect of the rule.

Other objections to the cellulosic biofuel standard noted in your petition may be raised in the context of this future rulemaking if you continue to believe they are relevant. We will respond at a later date to components of your petition for reconsideration of the 2013 RFS rule that are related to matters other than the cellulosic biofuel standard.

We look forward to working with you and all stakeholders to continue implementing the RFS program. Should you have any questions, please contact Dallas Burkholder in the Office of Transportation and Air Quality at (734) 214-4766 or [burkholder.dallas@epa.gov](mailto:burkholder.dallas@epa.gov).

Sincerely,

A handwritten signature in black ink, appearing to read "Gina McCarthy", is written over the typed name.

Gina McCarthy

ATTACHMENT 2 TO BRIEF OF RESPONDENT EPA

# **ADDENDUM OF STATUTES AND REGULATIONS**



## **ADDENDUM: STATUTES AND REGULATIONS**

Except for the following, all applicable statutes and regulations are contained in the Brief for Petitioner Monroe Energy, LLC and the Brief for Petitioners American Petroleum Institute and American Fuel and Petrochemical Manufacturers.

### **TABLE OF CONTENTS**

42 U.S.C. § 7607 .....	ADD1
40 C.F.R. § 80.1425 .....	ADD9
40 C.F.R. § 80.1426 .....	ADD10
40 C.F.R. § 80.1427 .....	ADD23
40 C.F.R. § 80.1428 .....	ADD25
40 C.F.R. § 80.1429 .....	ADD26
40 C.F.R. § 80.1441 .....	ADD29
40 C.F.R. § 80.1442 .....	ADD31
40 C.F.R. § 80.1452 .....	ADD34

**Effective:[See Text Amendments]**

United States Code Annotated Currentness

Title 42. The Public Health and Welfare

Chapter 85. Air Pollution Prevention and Control (Refs &amp; Annos)

Subchapter III. General Provisions

**→→ § 7607. Administrative proceedings and judicial review****(a) Administrative subpoenas; confidentiality; witnesses**

In connection with any determination under section 7410(f) of this title, or for purposes of obtaining information under section 7521(b)(4) or 7545(c)(3) of this title, any investigation, monitoring, reporting requirement, entry, compliance inspection, or administrative enforcement proceeding under the [FN1] chapter (including but not limited to section 7413, section 7414, section 7420, section 7429, section 7477, section 7524, section 7525, section 7542, section 7603, or section 7606 of this title), [FN2] the Administrator may issue subpoenas for the attendance and testimony of witnesses and the production of relevant papers, books, and documents, and he may administer oaths. Except for emission data, upon a showing satisfactory to the Administrator by such owner or operator that such papers, books, documents, or information or particular part thereof, if made public, would divulge trade secrets or secret processes of such owner or operator, the Administrator shall consider such record, report, or information or particular portion thereof confidential in accordance with the purposes of section 1905 of Title 18, except that such paper, book, document, or information may be disclosed to other officers, employees, or authorized representatives of the United States concerned with carrying out this chapter, to persons carrying out the National Academy of Sciences' study and investigation provided for in section 7521(c) of this title, or when relevant in any proceeding under this chapter. Witnesses summoned shall be paid the same fees and mileage that are paid witnesses in the courts of the United States. In case of contumacy or refusal to obey a subpoena served upon any person under this subparagraph, the district court of the United States for any district in which such person is found or resides or transacts business, upon application by the United States and after notice to such person, shall have jurisdiction to issue an order requiring such person to appear and give testimony before the Administrator to appear and produce papers, books, and documents before the Administrator, or both, and any failure to obey such order of the court may be punished by such court as a contempt thereof.

**(b) Judicial review**

(1) A petition for review of action of the Administrator in promulgating any national primary or secondary ambient air quality standard, any emission standard or requirement under section 7412 of this title, any standard of performance or requirement under section 7411 of this title, [FN2] any standard under section 7521 of this title (other than a standard required to be prescribed under section 7521(b)(1) of this title), any determination under section 7521(b)(5) of this title, any control or prohibition under section 7545 of this title, any standard

under section 7571 of this title, any rule issued under section 7413, 7419, or under section 7420 of this title, or any other nationally applicable regulations promulgated, or final action taken, by the Administrator under this chapter may be filed only in the United States Court of Appeals for the District of Columbia. A petition for review of the Administrator's action in approving or promulgating any implementation plan under section 7410 of this title or section 7411(d) of this title, any order under section 7411(j) of this title, under section 7412 of this title, under section 7419 of this title, or under section 7420 of this title, or his action under section 1857c-10(c)(2)(A), (B), or (C) of this title (as in effect before August 7, 1977) or under regulations thereunder, or revising regulations for enhanced monitoring and compliance certification programs under section 7414(a)(3) of this title, or any other final action of the Administrator under this chapter (including any denial or disapproval by the Administrator under subchapter I of this chapter) which is locally or regionally applicable may be filed only in the United States Court of Appeals for the appropriate circuit. Notwithstanding the preceding sentence a petition for review of any action referred to in such sentence may be filed only in the United States Court of Appeals for the District of Columbia if such action is based on a determination of nationwide scope or effect and if in taking such action the Administrator finds and publishes that such action is based on such a determination. Any petition for review under this subsection shall be filed within sixty days from the date notice of such promulgation, approval, or action appears in the Federal Register, except that if such petition is based solely on grounds arising after such sixtieth day, then any petition for review under this subsection shall be filed within sixty days after such grounds arise. The filing of a petition for reconsideration by the Administrator of any otherwise final rule or action shall not affect the finality of such rule or action for purposes of judicial review nor extend the time within which a petition for judicial review of such rule or action under this section may be filed, and shall not postpone the effectiveness of such rule or action.

(2) Action of the Administrator with respect to which review could have been obtained under paragraph (1) shall not be subject to judicial review in civil or criminal proceedings for enforcement. Where a final decision by the Administrator defers performance of any nondiscretionary statutory action to a later time, any person may challenge the deferral pursuant to paragraph (1).

(c) Additional evidence

In any judicial proceeding in which review is sought of a determination under this chapter required to be made on the record after notice and opportunity for hearing, if any party applies to the court for leave to adduce additional evidence, and shows to the satisfaction of the court that such additional evidence is material and that there were reasonable grounds for the failure to adduce such evidence in the proceeding before the Administrator, the court may order such additional evidence (and evidence in rebuttal thereof) to be taken before the Administrator, in such manner and upon such terms and conditions as to [FN3] the court may deem proper. The Administrator may modify his findings as to the facts, or make new findings, by reason of the additional evidence so taken and he shall file such modified or new findings, and his recommendation, if any, for the modification or setting aside of his original determination, with the return of such additional evidence.

(d) Rulemaking

(1) This subsection applies to--

- (A) the promulgation or revision of any national ambient air quality standard under section 7409 of this title,
- (B) the promulgation or revision of an implementation plan by the Administrator under section 7410(c) of this title,
- (C) the promulgation or revision of any standard of performance under section 7411 of this title, or emission standard or limitation under section 7412(d) of this title, any standard under section 7412(f) of this title, or any regulation under section 7412(g)(1)(D) and (F) of this title, or any regulation under section 7412(m) or (n) of this title,
- (D) the promulgation of any requirement for solid waste combustion under section 7429 of this title,
- (E) the promulgation or revision of any regulation pertaining to any fuel or fuel additive under section 7545 of this title,
- (F) the promulgation or revision of any aircraft emission standard under section 7571 of this title,
- (G) the promulgation or revision of any regulation under subchapter IV-A of this chapter (relating to control of acid deposition),
- (H) promulgation or revision of regulations pertaining to primary nonferrous smelter orders under section 7419 of this title (but not including the granting or denying of any such order),
- (I) promulgation or revision of regulations under subchapter VI of this chapter (relating to stratosphere and ozone protection),
- (J) promulgation or revision of regulations under part C of subchapter I of this chapter (relating to prevention of significant deterioration of air quality and protection of visibility),
- (K) promulgation or revision of regulations under section 7521 of this title and test procedures for new motor vehicles or engines under section 7525 of this title, and the revision of a standard under section 7521(a)(3) of this title,
- (L) promulgation or revision of regulations for noncompliance penalties under section 7420 of this title,
- (M) promulgation or revision of any regulations promulgated under section 7541 of this title (relating to warranties and compliance by vehicles in actual use),

(N) action of the Administrator under section 7426 of this title (relating to interstate pollution abatement),

(O) the promulgation or revision of any regulation pertaining to consumer and commercial products under section 7511b(e) of this title,

(P) the promulgation or revision of any regulation pertaining to field citations under section 7413(d)(3) of this title,

(Q) the promulgation or revision of any regulation pertaining to urban buses or the clean-fuel vehicle, clean-fuel fleet, and clean fuel programs under part C of subchapter II of this chapter,

(R) the promulgation or revision of any regulation pertaining to nonroad engines or nonroad vehicles under section 7547 of this title,

(S) the promulgation or revision of any regulation relating to motor vehicle compliance program fees under section 7552 of this title,

(T) the promulgation or revision of any regulation under subchapter IV-A of this chapter (relating to acid deposition),

(U) the promulgation or revision of any regulation under section 7511b(f) of this title pertaining to marine vessels, and

(V) such other actions as the Administrator may determine.

The provisions of section 553 through 557 and section 706 of Title 5 shall not, except as expressly provided in this subsection, apply to actions to which this subsection applies. This subsection shall not apply in the case of any rule or circumstance referred to in subparagraphs (A) or (B) of subsection 553(b) of Title 5.

(2) Not later than the date of proposal of any action to which this subsection applies, the Administrator shall establish a rulemaking docket for such action (hereinafter in this subsection referred to as a “rule”). Whenever a rule applies only within a particular State, a second (identical) docket shall be simultaneously established in the appropriate regional office of the Environmental Protection Agency.

(3) In the case of any rule to which this subsection applies, notice of proposed rulemaking shall be published in the Federal Register, as provided under section 553(b) of Title 5, shall be accompanied by a statement of its basis and purpose and shall specify the period available for public comment (hereinafter referred to as the “comment period”). The notice of proposed rulemaking shall also state the docket number, the location or locations of the docket, and the times it will be open to public inspection. The statement of basis and purpose

shall include a summary of--

- (A) the factual data on which the proposed rule is based;
- (B) the methodology used in obtaining the data and in analyzing the data; and
- (C) the major legal interpretations and policy considerations underlying the proposed rule.

The statement shall also set forth or summarize and provide a reference to any pertinent findings, recommendations, and comments by the Scientific Review Committee established under section 7409(d) of this title and the National Academy of Sciences, and, if the proposal differs in any important respect from any of these recommendations, an explanation of the reasons for such differences. All data, information, and documents referred to in this paragraph on which the proposed rule relies shall be included in the docket on the date of publication of the proposed rule.

(4)(A) The rulemaking docket required under paragraph (2) shall be open for inspection by the public at reasonable times specified in the notice of proposed rulemaking. Any person may copy documents contained in the docket. The Administrator shall provide copying facilities which may be used at the expense of the person seeking copies, but the Administrator may waive or reduce such expenses in such instances as the public interest requires. Any person may request copies by mail if the person pays the expenses, including personnel costs to do the copying.

(B)(i) Promptly upon receipt by the agency, all written comments and documentary information on the proposed rule received from any person for inclusion in the docket during the comment period shall be placed in the docket. The transcript of public hearings, if any, on the proposed rule shall also be included in the docket promptly upon receipt from the person who transcribed such hearings. All documents which become available after the proposed rule has been published and which the Administrator determines are of central relevance to the rulemaking shall be placed in the docket as soon as possible after their availability.

(ii) The drafts of proposed rules submitted by the Administrator to the Office of Management and Budget for any interagency review process prior to proposal of any such rule, all documents accompanying such drafts, and all written comments thereon by other agencies and all written responses to such written comments by the Administrator shall be placed in the docket no later than the date of proposal of the rule. The drafts of the final rule submitted for such review process prior to promulgation and all such written comments thereon, all documents accompanying such drafts, and written responses thereto shall be placed in the docket no later than the date of promulgation.

(5) In promulgating a rule to which this subsection applies (i) the Administrator shall allow any person to submit written comments, data, or documentary information; (ii) the Administrator shall give interested persons an opportunity for the oral presentation of data, views, or arguments, in addition to an opportunity to make written submissions; (iii) a transcript shall be kept of any oral presentation; and (iv) the Administrator shall keep the

record of such proceeding open for thirty days after completion of the proceeding to provide an opportunity for submission of rebuttal and supplementary information.

**(6)(A)** The promulgated rule shall be accompanied by (i) a statement of basis and purpose like that referred to in paragraph (3) with respect to a proposed rule and (ii) an explanation of the reasons for any major changes in the promulgated rule from the proposed rule.

**(B)** The promulgated rule shall also be accompanied by a response to each of the significant comments, criticisms, and new data submitted in written or oral presentations during the comment period.

**(C)** The promulgated rule may not be based (in part or whole) on any information or data which has not been placed in the docket as of the date of such promulgation.

**(7)(A)** The record for judicial review shall consist exclusively of the material referred to in paragraph (3), clause (i) of paragraph (4)(B), and subparagraphs (A) and (B) of paragraph (6).

**(B)** Only an objection to a rule or procedure which was raised with reasonable specificity during the period for public comment (including any public hearing) may be raised during judicial review. If the person raising an objection can demonstrate to the Administrator that it was impracticable to raise such objection within such time or if the grounds for such objection arose after the period for public comment (but within the time specified for judicial review) and if such objection is of central relevance to the outcome of the rule, the Administrator shall convene a proceeding for reconsideration of the rule and provide the same procedural rights as would have been afforded had the information been available at the time the rule was proposed. If the Administrator refuses to convene such a proceeding, such person may seek review of such refusal in the United States court of appeals for the appropriate circuit (as provided in subsection (b) of this section). Such reconsideration shall not postpone the effectiveness of the rule. The effectiveness of the rule may be stayed during such reconsideration, however, by the Administrator or the court for a period not to exceed three months.

**(8)** The sole forum for challenging procedural determinations made by the Administrator under this subsection shall be in the United States court of appeals for the appropriate circuit (as provided in subsection (b) of this section) at the time of the substantive review of the rule. No interlocutory appeals shall be permitted with respect to such procedural determinations. In reviewing alleged procedural errors, the court may invalidate the rule only if the errors were so serious and related to matters of such central relevance to the rule that there is a substantial likelihood that the rule would have been significantly changed if such errors had not been made.

**(9)** In the case of review of any action of the Administrator to which this subsection applies, the court may reverse any such action found to be--

**(A)** arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law;

(B) contrary to constitutional right, power, privilege, or immunity;

(C) in excess of statutory jurisdiction, authority, or limitations, or short of statutory right; or

(D) without observance of procedure required by law, if (i) such failure to observe such procedure is arbitrary or capricious, (ii) the requirement of paragraph (7)(B) has been met, and (iii) the condition of the last sentence of paragraph (8) is met.

(10) Each statutory deadline for promulgation of rules to which this subsection applies which requires promulgation less than six months after date of proposal may be extended to not more than six months after date of proposal by the Administrator upon a determination that such extension is necessary to afford the public, and the agency, adequate opportunity to carry out the purposes of this subsection.

(11) The requirements of this subsection shall take effect with respect to any rule the proposal of which occurs after ninety days after August 7, 1977.

(e) Other methods of judicial review not authorized

Nothing in this chapter shall be construed to authorize judicial review of regulations or orders of the Administrator under this chapter, except as provided in this section.

(f) Costs

In any judicial proceeding under this section, the court may award costs of litigation (including reasonable attorney and expert witness fees) whenever it determines that such award is appropriate.

(g) Stay, injunction, or similar relief in proceedings relating to noncompliance penalties

In any action respecting the promulgation of regulations under section 7420 of this title or the administration or enforcement of section 7420 of this title no court shall grant any stay, injunctive, or similar relief before final judgment by such court in such action.

(h) Public participation

It is the intent of Congress that, consistent with the policy of subchapter II of chapter 5 of Title 5, the Administrator in promulgating any regulation under this chapter, including a regulation subject to a deadline, shall ensure a reasonable period for public participation of at least 30 days, except as otherwise expressly provided in section [FN4] 7407(d), 7502(a), 7511(a) and (b), and 7512(a) and (b) of this title.



## CREDIT(S)

(July 14, 1955, c. 360, Title III, § 307, as added Dec. 31, 1970, Pub.L. 91-604, § 12(a), 84 Stat. 1707; amended Nov. 18, 1971, Pub.L. 92-157, Title III, § 302(a), 85 Stat. 464; June 22, 1974, Pub.L. 93-319, § 6(c), 88 Stat. 259; Aug. 7, 1977, Pub.L. 95-95, Title III, §§ 303(d), 305(a), (c), (f)-(h), 91 Stat. 772, 776, 777; Nov. 16, 1977, Pub.L. 95-190, § 14(a)(79), (80), 91 Stat. 1404; Nov. 15, 1990, Pub.L. 101-549, Title I, §§ 108(p), 110(5), Title III, § 302(g), (h), Title VII, §§ 702(c), 703, 706, 707(h), 710(b), 104 Stat. 2469, 2470, 2574, 2681-2684.)

[FN1] So in original. Probably should be “this”.

[FN2] So in original.

[FN3] So in original. The word “to” probably should not appear.

[FN4] So in original. Probably should be “sections”.

Current through P.L. 113-74 (excluding P.L. 113-66, 113-67, and 113-73) approved 1-16-14

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(iii) List of other uses for the feedstock.

(iv) List of chemical inputs needed to produce the renewable biomass source of the feedstock and prepare the renewable biomass for processing into feedstock.

(v) Identify energy needed to obtain the feedstock and deliver it to the facility. If applicable, identify energy needed to plant and harvest the renewable biomass source of the feedstock and modify the source to create the feedstock.

(vi) Current and projected quantities of the feedstock that will be used to produce the fuel, including information on current and projected yields for feedstocks that are harvested or collected.

(vii) The Administrator may ask for additional information to complete the lifecycle Greenhouse Gas assessment of the new fuel or pathway.

(c)(1) A company may only submit one petition per pathway. If EPA determines the petition to be incomplete, then the company may resubmit.

(2) The petition must be signed and certified as meeting all the applicable requirements of this subpart by the responsible corporate officer of the applicant company.

(3) If EPA determines that the petition is incomplete then EPA will notify the applicant in writing that the petition is incomplete and will not be reviewed further. However, an amended petition that corrects the omission may be re-submitted for EPA review.

(4) If the fuel or pathway described in the petition does not meet the definitions in §80.1401 of renewable fuel, advanced biofuel, cellulosic biofuel, or biomass-based diesel, then EPA will notify the applicant in writing that the petition is denied and will not be reviewed further.

(d) A D code must be approved prior to the generation of RINs for the fuel in question.

(e) The petition under this section shall be submitted on forms and following procedures as prescribed by EPA.

[75 FR 26037, May 10, 2010]

## §§ 80.1417–80.1424 [Reserved]

### § 80.1425 Renewable Identification Numbers (RINs).

RINs generated on or after July 1, 2010 shall not be generated as a 38-digit code, but shall be identified by the information specified in paragraphs (a) through (i) of this section and introduced into EMTS as data elements during the generation of RINs pursuant to §80.1452(b). For RINs generated prior to July 1, 2010, each RIN is a 38-digit code of the following form:

KYYYYCCCCFFFFFBBBBBRD

SSSSSSSSEEEEEEE

(a) K is a number identifying the type of RIN as follows:

(1) K has the value of 1 when the RIN is assigned to a volume of renewable fuel pursuant to §80.1426(e) and §80.1428(a).

(2) K has the value of 2 when the RIN has been separated from a volume of renewable fuel pursuant to §80.1429.

(b) YYYY is the calendar year in which the RIN was generated.

(c) CCCC is the registration number assigned, according to §80.1450, to the producer or importer of the batch of renewable fuel.

(d) FFFFFF is the registration number assigned, according to §80.1450, to the facility at which the batch of renewable fuel was produced or imported.

(e) BBBBBB is a serial number assigned to the batch which is chosen by the producer or importer of the batch such that no two batches have the same value in a given calendar year.

(f) RR is a number representing 10 times the equivalence value of the renewable fuel as specified in §80.1415.

(g) D is a number determined according to §80.1426(f) and identifying the type of renewable fuel, as follows:

(1) D has the value of 3 to denote fuel categorized as cellulosic biofuel.

(2) D has the value of 4 to denote fuel categorized as biomass-based diesel.

(3) D has the value of 5 to denote fuel categorized as advanced biofuel.

(4) D has the value of 6 to denote fuel categorized as renewable fuel.

(5) D has the value of 7 to denote fuel categorized as cellulosic diesel.

(h) SSSSSSSS is a number representing the first gallon-RIN associated with a batch of renewable fuel.

(i) EEEEEEEE is a number representing the last gallon-RIN associated with a volume of renewable fuel.

[75 FR 14863, Mar. 26, 2010, as amended at 75 FR 79977, Dec. 21, 2010]

**§ 80.1426 How are RINs generated and assigned to batches of renewable fuel by renewable fuel producers or importers?**

(a) *General requirements.* (1) To the extent permitted under paragraphs (b) and (c) of this section, producers and importers of renewable fuel must generate RINs to represent that fuel if the fuel:

(i) Qualifies for a D code pursuant to § 80.1426(f), or EPA has approved a petition for use of a D code pursuant to § 80.1416; and

(ii) Is demonstrated to be produced from renewable biomass pursuant to the reporting requirements of § 80.1451 and the recordkeeping requirements of § 80.1454; and

(A) Feedstocks meeting the requirements of renewable biomass through the aggregate compliance provision at § 80.1454(g) are deemed to be renewable biomass.

(B) [Reserved]

(iii) Was produced in compliance with the registration requirements of § 80.1450, the reporting requirements of § 80.1451, the recordkeeping requirements of § 80.1454, and all other applicable regulations of this subpart M.

(2) To generate RINs for imported renewable fuel, including any renewable fuel contained in imported transportation fuel, heating oil, or jet fuel, importers must obtain information from a foreign producer that is registered pursuant to § 80.1450 sufficient to make the appropriate determination regarding the applicable D code and compliance with the renewable biomass definition for each imported batch for which RINs are generated.

(3) A party generating a RIN shall specify the appropriate numerical values for each component of the RIN in accordance with the provisions of § 80.1425(a) and paragraph (f) of this section.

(b) *Regional applicability.* (1) Except as provided in paragraph (c) of this section, a RIN must be generated by a renewable fuel producer or importer for a batch of renewable fuel that satisfies the requirements of paragraph (a)(1) of this section if it is produced or imported for use as transportation fuel, heating oil, or jet fuel in the 48 contiguous states or Hawaii.

(2) If the Administrator approves a petition of Alaska or a United States territory to opt-in to the renewable fuel program under the provisions in § 80.1443, then the requirements of paragraph (b)(1) of this section shall also apply to renewable fuel produced or imported for use as transportation fuel, heating oil, or jet fuel in that state or territory beginning in the next calendar year.

(c) *Cases in which RINs are not generated.* (1) Fuel producers and importers may not generate RINs for fuel that is not designated or intended for use as transportation fuel, heating oil, or jet fuel.

(2) *Small producer/importer threshold.* Pursuant to § 80.1455(a) and (b), renewable fuel producers that produce less than 10,000 gallons a year of renewable fuel, and importers that import less than 10,000 gallons a year of renewable fuel, are not required to generate and assign RINs to batches of renewable fuel that satisfy the requirements of paragraph (a)(1) of this section that they produce or import.

(3) *Temporary new producer threshold.* Pursuant to § 80.1455(c) and (d), new renewable fuel producers that produce less than 125,000 gallons of renewable fuel a year are not required to generate and assign RINs to batches of renewable fuel to satisfy the requirements of paragraph (a)(1) of this section.

(i) The provisions of this paragraph (c)(3) apply only to new facilities, for a maximum of three years beginning with the calendar year in which the production facility produces its first gallon of renewable fuel.

(ii) [Reserved]

(4) Importers shall not generate RINs for renewable fuel imported from a foreign renewable fuel producer, or for renewable fuel made with ethanol produced by a foreign ethanol producer,

unless the foreign renewable fuel producer or foreign ethanol producer is registered with EPA as required in § 80.1450.

(5) Importers shall not generate RINs for renewable fuel that has already been assigned RINs by a registered foreign producer.

(6) A party is prohibited from generating RINs for a volume of fuel that it produces if:

(i) The fuel does not meet the requirements of paragraph (a)(1) of this section; or

(ii) The fuel has been produced from a chemical conversion process that uses another renewable fuel as a feedstock, the renewable fuel used as a feedstock was produced by another party, and RINs were received with the renewable fuel.

(A) Parties who produce renewable fuel made from a feedstock which itself was a renewable fuel received with RINs, shall assign the original RINs to the new renewable fuel.

(B) [Reserved]

(d)(1) *Definition of batch.* For the purposes of this section and § 80.1425, a “batch of renewable fuel” is a volume of renewable fuel that has been assigned a unique identifier within a calendar year by the producer or importer of the renewable fuel in accordance with the provisions of this section and § 80.1425.

(i) The number of gallon-RINs generated for a batch of renewable fuel may not exceed 99,999,999.

(ii) A batch of renewable fuel cannot represent renewable fuel produced or imported in excess of one calendar month.

(2) Multiple gallon-RINs generated to represent a given volume of renewable fuel can be represented by a single batch-RIN through the appropriate designation of the RIN volume codes SSSSSSSS and EEEEEEEE.

(i) The value of SSSSSSSS in the batch-RIN shall be 00000001 to represent the first gallon-RIN associated with the volume of renewable fuel.

(ii) The value of EEEEEEEE in the batch-RIN shall represent the last gallon-RIN associated with the volume of renewable fuel, based on the RIN volume  $V_{RIN}$  determined pursuant to paragraph (f) of this section.

(iii) Under § 80.1452, RIN volumes will be managed by EMTS. RIN codes SSSSSSSS and EEEEEEEE do not have a role in EMTS.

(e) *Assignment of RINs to batches.* (1) Except as provided in paragraph (g) of this section for delayed RINs, the producer or importer of renewable fuel must assign all RINs generated to volumes of renewable fuel.

(2) A RIN is assigned to a volume of renewable fuel when ownership of the RIN is transferred along with the transfer of ownership of the volume of renewable fuel, pursuant to § 80.1428(a).

(3) All assigned RINs shall have a K code value of 1.

(f) *Generation of RINs—(1) Applicable pathways.* D codes shall be used in RINs generated by producers or importers of renewable fuel according to the pathways listed in Table 1 to this section, paragraph (f)(6) of this section, or as approved by the Administrator. In choosing an appropriate D code, producers and importers may disregard any incidental, de minimis feedstock contaminants that are impractical to remove and are related to customary feedstock production and transport. Tables 1 and 2 to this section do not apply to, and impose no requirements with respect to, volumes of fuel for which RINs are generated pursuant to paragraph (f)(6) of this section.

TABLE 1 TO § 80.1426—APPLICABLE D CODES FOR EACH FUEL PATHWAY FOR USE IN GENERATING RINs

	Fuel type	Feedstock	Production process requirements	D—Code
A .....	Ethanol .....	Corn starch .....	All of the following: Dry mill process, using natural gas, biomass, or biogas for process energy and at least two advanced technologies from Table 2 to this section.	6

TABLE 1 TO § 80.1426—APPLICABLE D CODES FOR EACH FUEL PATHWAY FOR USE IN GENERATING RINS—Continued

	Fuel type	Feedstock	Production process requirements	D—Code
B .....	Ethanol .....	Corn starch .....	All of the following: Dry mill process, using natural gas, biomass, or biogas for process energy and at least one of the advanced technologies from Table 2 to this section plus drying no more than 65% of the distillers grains with solubles it markets annually.	6
C .....	Ethanol .....	Corn starch .....	All of the following: Dry mill process, using natural gas, biomass, or biogas for process energy and drying no more than 50% of the distillers grains with solubles it markets annually.	6
D .....	Ethanol .....	Corn starch .....	Wet mill process using biomass or biogas for process energy.	6
E .....	Ethanol .....	Starches from crop residue and annual covercrops.	Fermentation using natural gas, biomass, or biogas for process energy.	6
F .....	Biodiesel, renewable diesel, jet fuel and heating oil.	Soy bean oil; Oil from annual covercrops; Algal oil; Biogenic waste oils/fats/greases; Non-food grade corn oil <i>Camelina sativa</i> oil.	One of the following: Trans-Esterification Hydrotreating Excluding processes that co-process renewable biomass and petroleum.	4
G .....	Biodiesel, heating oil.	Canola/Rapeseed oil .....	Trans-Esterification using natural gas or biomass for process energy.	4
H .....	Biodiesel, renewable diesel, jet fuel and heating oil.	Soy bean oil; Oil from annual covercrops; Algal oil; Biogenic waste oils/fats/greases; Non-food grade corn oil <i>Camelina sativa</i> oil.	One of the following: Trans-Esterification Hydrotreating Includes only processes that co-process renewable biomass and petroleum.	5
I .....	Naphtha, LPG ..	<i>Camelina sativa</i> oil .....	Hydrotreating .....	5
J .....	Ethanol .....	Sugarcane .....	Fermentation .....	5
K .....	Ethanol .....	Cellulosic Biomass from crop residue, slash, pre-commercial thinnings and tree residue, annual covercrops, switchgrass, miscanthus, and energy cane; cellulosic components of separated yard waste; cellulosic components of separated food waste; and cellulosic components of separated MSW.	Any .....	3
L .....	Cellulosic diesel, jet fuel and heating oil.	Cellulosic Biomass from crop residue, slash, pre-commercial thinnings and tree residue, annual covercrops, switchgrass, miscanthus, and energy cane; cellulosic components of separated yard waste; cellulosic components of separated food waste; and cellulosic components of separated MSW.	Any .....	7
M .....	Renewable gasoline and renewable gasoline blendstock.	Cellulosic Biomass from crop residue, slash, pre-commercial thinnings, tree residue, annual cover crops; cellulosic components of separated yard waste; cellulosic components of separated food waste; and cellulosic components of separated MSW.	Catalytic Pyrolysis and Upgrading, Gasification and Upgrading, Thermo-Catalytic Hydrodeoxygenation and Upgrading, Direct Biological Conversion, Biological Conversion and Upgrading, all utilizing natural gas, biogas, and/or biomass as the only process energy sources Any process utilizing biogas and/or biomass as the only process energy sources.	3
N .....	Naphtha .....	Cellulosic biomass from switchgrass, miscanthus, and energy cane.	Gasification and upgrading .....	3
O .....	Butanol .....	Corn starch .....	Fermentation; dry mill using natural gas, biomass, or biogas for process energy.	6
P .....	Ethanol, renewable diesel, jet fuel, heating oil, and naphtha.	The non-cellulosic portions of separated food waste.	Any .....	5
Q .....	Biogas .....	Landfills, sewage waste treatment plants, manure digesters.	Any .....	5

TABLE 1 TO § 80.1426—APPLICABLE D CODES FOR EACH FUEL PATHWAY FOR USE IN GENERATING RINS—Continued

	Fuel type	Feedstock	Production process requirements	D-Code
R .....	Ethanol .....	Grain Sorghum .....	Dry mill process using biogas from landfills, waste treatment plants, and/or waste digesters, and/or natural gas, for process energy.	6
S .....	Ethanol .....	Grain Sorghum .....	Dry mill process, using only biogas from landfills, waste treatment plants, and/or waste digesters for process energy and for on-site production of all electricity used at the site other than up to 0.15 kWh of electricity from the grid per gallon of ethanol produced, calculated on a per batch basis.	5

TABLE 2 TO § 80.1426—ADVANCED TECHNOLOGIES

Corn oil fractionation that is applied to at least 90% of the corn used to produce ethanol on a calendar year basis.

Corn oil extraction that is applied to the whole stillage and/or derivatives of whole stillage and results in recovery of corn oil at an annual average rate equal to or greater than 1.33 pounds oil per bushel of corn processed into ethanol.

Membrane separation in which at least 90% of ethanol dehydration is carried out using a hydrophilic membrane on a calendar year basis.

Raw starch hydrolysis that is used for at least 90% of starch hydrolysis used to produce ethanol instead of hydrolysis using a traditional high heat cooking process, calculated on a calendar year basis.

Combined heat and power such that, on a calendar year basis, at least 90% of the thermal energy associated with ethanol production (including thermal energy produced at the facility and that which is derived from an off-site waste heat supplier), exclusive of any thermal energy used for the drying of distillers grains and solubles, is used to produce electricity prior to being used to meet the process heat requirements of the facility.

(2) *Renewable fuel that can be described by a single pathway.* (i) The number of gallon-RINs that shall be generated for a batch of renewable fuel by a producer or importer for renewable fuel that can be described by a single pathway shall be equal to a volume calculated according to the following formula:

$$V_{\text{RIN}} = \text{EV} * V_s$$

Where:

$V_{\text{RIN}}$  = RIN volume, in gallons, for use in determining the number of gallon-RINs that shall be generated for the batch.

EV = Equivalence value for the batch of renewable fuel per § 80.1415.

$V_s$  = Standardized volume of the batch of renewable fuel at 60 °F, in gallons, calculated in accordance with paragraph (f)(8) of this section.

(ii) The D code that shall be used in the RINs generated shall be the D code specified in Table 1 to this section, or a D code as approved by the Administrator, which corresponds to the pathway that describes the producer's operations.

(3) *Renewable fuel that can be described by two or more pathways.* (i) The D codes that shall be used in the RINs generated by a producer or importer whose renewable fuel can be described by two or more pathways shall be the D codes specified in Table 1 to this section, or D codes as approved by the Administrator, which correspond to the pathways that describe the renewable fuel throughout that calendar year.

(ii) If all the pathways describing the producer's operations have the same D code and each batch is of a single fuel type, then that D code shall be used in all the RINs generated and the number of gallon-RINs that shall be generated for a batch of renewable fuel shall be equal to a volume calculated according to the following formula:

$$V_{\text{RIN}} = \text{EV} * V_s$$

Where:

$V_{\text{RIN}}$  = RIN volume, in gallons, for use in determining the number of gallon-RINs that shall be generated for the batch.

EV = Equivalence value for the batch of renewable fuel per § 80.1415.

$V_s$  = Standardized volume of the batch of renewable fuel at 60 °F, in gallons, calculated in accordance with paragraph (f)(8) of this section.

(iii) If all the pathways describing the producer's operations have the same D code but individual batches are comprised of a mixture of fuel types with different equivalence values, then that D code shall be used in all the RINs generated and the number of gallon-RINs that shall be generated for a batch of renewable fuel shall be equal to a volume calculated according to the following formula:

$$V_{RIN} = \Sigma(EV_i * V_{s,i})$$

Where:

$V_{RIN}$  = RIN volume, in gallons, for use in determining the number of gallon-RINs that shall be generated for the batch.

$EV_i$  = Equivalence value for fuel type i in the batch of renewable fuel per §80.1415.

$V_{s,i}$  = Standardized volume of fuel type i in the batch of renewable fuel at 60 °F, in gallons, calculated in accordance with paragraph (f)(8) of this section.

(iv) If the pathway applicable to a producer changes on a specific date, such that one pathway applies before the date and another pathway applies on and after the date, and each batch is of a single fuel type, then the applicable D code and batch identifier used in generating RINs must change on the date that the change in pathway occurs and the number of gallon-RINs that shall be generated for a batch of renewable fuel shall be equal to a volume calculated according to the following formula:

$$V_{RIN} = EV * V_s$$

Where:

$V_{RIN}$  = RIN volume, in gallons, for use in determining the number of gallon-RINs that shall be generated for a batch with a single applicable D code.

$EV$  = Equivalence value for the batch of renewable fuel per §80.1415.

$V_s$  = Standardized volume of the batch of renewable fuel at 60 °F, in gallons, calculated in accordance with paragraph (f)(8) of this section.

(v) If a producer produces batches that are comprised of a mixture of fuel types with different equivalence values and different applicable D codes, then separate values for  $V_{RIN}$  shall be calculated for each category of renewable

fuel according to formulas in Table 3 to this section. All batch-RINs thus generated shall be assigned to unique batch identifiers for each portion of the batch with a different D code.

TABLE 3 TO § 80.1426—NUMBER OF GALLON-RINs TO ASSIGN TO BATCH-RINs WITH D CODES DEPENDENT ON FUEL TYPE

D code to use in batch-RIN	Number of gallon-RINs
D = 3 .....	$V_{RIN, CB} = EV_{CB} * V_{s, CB}$
D = 4 .....	$V_{RIN, BBD} = EV_{BBD} * V_{s, BBD}$
D = 5 .....	$V_{RIN, AB} = EV_{AB} * V_{s, AB}$
D = 6 .....	$V_{RIN, RI} = EV_{RI} * V_{s, RI}$
D = 7 .....	$V_{RIN, CD} = EV_{CD} * V_{s, CD}$

Where:

$V_{RIN, CB}$  = RIN volume, in gallons, for use in determining the number of gallon-RINs that shall be generated for the cellulosic biofuel portion of the batch with a D code of 3.

$V_{RIN, BBD}$  = RIN volume, in gallons, for use in determining the number of gallon-RINs that shall be generated for the biomass-based diesel portion of the batch with a D code of 4.

$V_{RIN, AB}$  = RIN volume, in gallons, for use in determining the number of gallon-RINs that shall be generated for the advanced biofuel portion of the batch with a D code of 5.

$V_{RIN, RI}$  = RIN volume, in gallons, for use in determining the number of gallon-RINs that shall be generated for the renewable fuel portion of the batch with a D code of 6.

$V_{RIN, CD}$  = RIN volume, in gallons, for use in determining the number of gallon-RINs that shall be generated for the cellulosic diesel portion of the batch with a D code of 7.

$EV_{CB}$  = Equivalence value for the cellulosic biofuel portion of the batch per §80.1415.

$EV_{BBD}$  = Equivalence value for the biomass-based diesel portion of the batch per §80.1415.

$EV_{AB}$  = Equivalence value for the advanced biofuel portion of the batch per §80.1415.

$EV_{RI}$  = Equivalence value for the renewable fuel portion of the batch per §80.1415.

$EV_{CD}$  = Equivalence value for the cellulosic diesel portion of the batch per §80.1415.

$V_{s, CB}$  = Standardized volume at 60 °F of the portion of the batch that must be assigned a D code of 3, in gallons, calculated in accordance with paragraph (f)(8) of this section.

$V_{s, BBD}$  = Standardized volume at 60 °F of the portion of the batch that must be assigned a D code of 4, in gallons, calculated in accordance with paragraph (f)(8) of this section.

$V_{s,AB}$  = Standardized volume at 60 °F of the portion of the batch that must be assigned a D code of 5, in gallons, calculated in accordance with paragraph (f)(8) of this section.

$V_{s,RIF}$  = Standardized volume at 60 °F of the portion of the batch that must be assigned a D code of 6, in gallons, calculated in accordance with paragraph (f)(8) of this section.

$V_{s,CD}$  = Standardized volume at 60 °F of the portion of the batch that must be assigned a D code of 7, in gallons, calculated in accordance with paragraph (f)(8) of this section.

(vi) If a producer produces a single type of renewable fuel using two or more different feedstocks which are processed simultaneously, and each batch is comprised of a single type of fuel, then the number of gallon-RINs that shall be generated for a batch of renewable fuel and assigned a particular D code shall be determined according to the formulas in Table 4 to this section.

Table 4 to §80.1426

Number of gallon-RINs to assign to batch-RINs with D codes dependent on feedstock

D code to use in batch-RIN	Number of gallon-RINs
D = 3	$V_{RIN, CB} = EV * V_s * \left( \frac{FE_3}{FE_3 + FE_4 + FE_5 + FE_6 + FE_7} \right)$
D = 4	$V_{RIN, BBD} = EV * V_s * \left( \frac{FE_4}{FE_3 + FE_4 + FE_5 + FE_6 + FE_7} \right)$
D = 5	$V_{RIN, AB} = EV * V_s * \left( \frac{FE_5}{FE_3 + FE_4 + FE_5 + FE_6 + FE_7} \right)$
D = 6	$V_{RIN, RF} = EV * V_s * \left( \frac{FE_6}{FE_3 + FE_4 + FE_5 + FE_6 + FE_7} \right)$
D = 7	$V_{RIN, CD} = EV * V_s * \left( \frac{FE_7}{FE_3 + FE_4 + FE_5 + FE_6 + FE_7} \right)$

Where:

$V_{RIN, CB}$  = RIN volume, in gallons, for use in determining the number of gallon-RINs that shall be generated for a batch of cellulosic biofuel with a D code of 3.

$V_{RIN, BBD}$  = RIN volume, in gallons, for use in determining the number of gallon-RINs that shall be generated for a batch of biomass-based diesel with a D code of 4.

$V_{RIN, AB}$  = RIN volume, in gallons, for use in determining the number of gallon-RINs that shall be generated for a batch of advanced biofuel with a D code of 5.

$V_{RIN, RF}$  = RIN volume, in gallons, for use in determining the number of gallon-RINs that shall be generated for a batch of renewable fuel with a D code of 6.

$V_{RIN, CD}$  = RIN volume, in gallons, for use in determining the number of gallon-RINs that shall be generated for a batch of cellulosic diesel with a D code of 7.

EV = Equivalence value for the renewable fuel per §80.1415.

$V_s$  = Standardized volume of the batch of renewable fuel at 60 °F, in gallons, calculated in accordance with paragraph

(f)(8) of this section.

$FE_3$  = Feedstock energy from all feedstocks whose pathways have been assigned a D code of 3 under Table 1 to this section, or a D code of 3 as approved by the Administrator, in Btu.

$FE_4$  = Feedstock energy from all feedstocks whose pathways have been assigned a D code of 4 under Table 1 to this section, or a D code of 4 as approved by the Administrator, in Btu.

$FE_5$  = Feedstock energy from all feedstocks whose pathways have been assigned a D code of 5 under Table 1 to this section, or a D code of 5 as approved by the Administrator, in Btu.

$FE_6$  = Feedstock energy from all feedstocks whose pathways have been assigned a D code of 6 under Table 1 to this section, or a D code of 6 as approved by the Administrator, in Btu.

$FE_7$  = Feedstock energy from all feedstocks whose pathways have been assigned a D code of 7 under Table 1 to this section, or



a D code of 7 as approved by the Administrator, in Btu.

Feedstock energy values, FE, shall be calculated according to the following formula:

$$FE = M * (1 - m) * CF * E$$

Where:

FE = Feedstock energy, in Btu.

M = Mass of feedstock, in pounds, measured on a daily or per-batch basis.

m = Average moisture content of the feedstock, in mass percent.

CF = Converted Fraction in annual average mass percent, representing that portion of the feedstock that is converted into renewable fuel by the producer.

E = Energy content of the components of the feedstock that are converted to renewable fuel, in annual average Btu/lb, determined according to paragraph (f)(7) of this section.

(4) *Renewable fuel that is produced by co-processing renewable biomass and non-renewable feedstocks simultaneously to produce a fuel that is partially renewable.*

(i) The number of gallon-RINs that shall be generated for a batch of partially renewable fuel shall be equal to a volume  $V_{RIN}$  calculated according to Method A or Method B.

(A) *Method A. (1)*  $V_{RIN}$  shall be calculated according to the following formula:

$$V_{RIN} = EV * V_s * FE_R / (FE_R + FE_{NR})$$

Where:

$V_{RIN}$  = RIN volume, in gallons, for use in determining the number of gallon-RINs that shall be generated for the batch.

EV = Equivalence value for the batch of renewable fuel per § 80.1415.

$V_s$  = Standardized volume of the batch of renewable fuel at 60 °F, in gallons, calculated in accordance with paragraph (f)(8) of this section.

$FE_R$  = Feedstock energy from renewable biomass used to make the transportation fuel, heating oil, or jet fuel, in Btu.

$FE_{NR}$  = Feedstock energy from non-renewable feedstocks used to make the transportation fuel, heating oil, or jet fuel, in Btu.

(2) The value of FE for use in paragraph (f)(4)(i)(A)(1) of this section shall be calculated from the following formula:

$$FE = M * (1 - m) * CF * E$$

Where:

FE = Feedstock energy, in Btu.

M = Mass of feedstock, in pounds, measured on a daily or per-batch basis.

m = Average moisture content of the feedstock, in mass percent.

CF = Converted Fraction in annual average mass percent, representing that portion of the feedstock that is converted into transportation fuel, heating oil, or jet fuel by the producer.

E = Energy content of the components of the feedstock that are converted to fuel, in annual average Btu/lb, determined according to paragraph (f)(7) of this section.

(B) *Method B.*  $V_{RIN}$  shall be calculated according to the following formula:

$$V_{RIN} = EV * V_s * R$$

Where:

$V_{RIN}$  = RIN volume, in gallons, for use in determining the number of gallon-RINs that shall be generated for the batch.

EV = Equivalence value for the batch of renewable fuel per § 80.1415.

$V_s$  = Standardized volume of the batch of renewable fuel at 60 °F, in gallons, calculated in accordance with paragraph (f)(8) of this section.

R = The renewable fraction of the fuel as measured by a carbon-14 dating test method as provided in paragraph (f)(9) of this section.

(ii) The D code that shall be used in the RINs generated to represent partially renewable transportation fuel, heating oil, or jet fuel shall be the D code specified in Table 1 to this section, or a D code as approved by the Administrator, which corresponds to the pathway that describes a producer's operations. In determining the appropriate pathway, the contribution of non-renewable feedstocks to the production of partially renewable fuel shall be ignored.

(5) *Renewable fuel produced from separated yard and food waste.* (i) *Separated yard waste and food waste* means, for the purposes of this section, waste that is one of the following:

(A) *Separated yard waste*, which is a feedstock stream consisting of yard waste kept separate since generation from other waste materials. Separated yard waste is deemed to be composed entirely of cellulosic materials.

(B) *Separated food waste*, which is a feedstock stream consisting of food waste kept separate since generation from other waste materials, and which includes food and beverage production

waste and post-consumer food and beverage waste. Separated food waste is deemed to be composed entirely of non-cellulosic materials, unless a party demonstrates that a portion of the feedstock is cellulosic through approval of their facility registration.

(C) *Separated municipal solid waste (separated MSW)*, which is material remaining after separation actions have been taken to remove recyclable paper, cardboard, plastics, rubber, textiles, metals, and glass from municipal solid waste, and which is composed of both cellulosic and non-cellulosic materials.

(i)(A) A feedstock qualifies under paragraph (f)(5)(i)(A) or (f)(5)(i)(B) of this section only if it is collected according to a plan submitted to and accepted by U.S. EPA under the registration procedures specified in § 80.1450(b)(1)(vii).

(B) A feedstock qualifies under paragraph (f)(5)(i)(C) of this section only if it is collected according to a plan submitted to and approved by U.S. EPA.

(iii) Separation and recycling actions specified in paragraph (f)(5)(i)(C) of this section are considered to occur if:

(A) Recyclable paper, cardboard, plastics, rubber, textiles, metals, and glass that can be recycled are separated and removed from the municipal solid waste stream to the extent reasonably practicable according to a plan submitted to and approved by U.S. EPA under the registration procedures specified in § 80.1450(b)(1)(viii); and

(B) The fuel producer has evidence of all contracts relating to the disposition of paper, cardboard, plastics, rubber, textiles, metals, and glass that are recycled.

(iv)(A) The number of gallon-RINs that shall be generated for a batch of renewable fuel derived from separated yard waste as defined in paragraph (f)(5)(i)(A) of this section shall be equal to a volume  $V_{\text{RIN}}$  and is calculated according to the following formula:

$$V_{\text{RIN}} = \text{EV} * V_s$$

Where:

$V_{\text{RIN}}$  = RIN volume, in gallons, for use in determining the number of cellulosic biofuel gallon-RINs that shall be generated for the batch.

EV = Equivalence value for the batch of renewable fuel per § 80.1415.

$V_s$  = Standardized volume of the batch of renewable fuel at 60 °F, in gallons, calculated in accordance with paragraph (f)(8) of this section.

(B) The number of gallon-RINs that shall be generated for a batch of renewable fuel derived from separated food waste as defined in paragraph (f)(5)(i)(B) of this section shall be equal to a volume  $V_{\text{RIN}}$  and is calculated according to the following formula:

$$V_{\text{RIN}} = \text{EV} * V_s$$

Where:

$V_{\text{RIN}}$  = RIN volume, in gallons, for use in determining the number of cellulosic or advanced biofuel gallon-RINs that shall be generated for the batch.

EV = Equivalence value for the batch of renewable fuel per § 80.1415.

$V_s$  = Standardized volume of the batch of renewable fuel at 60 °F, in gallons, calculated in accordance with paragraph (f)(8) of this section.

(v) The number of cellulosic biofuel gallon-RINs that shall be generated for the cellulosic portion of a batch of renewable fuel derived from separated MSW as defined in paragraph (f)(5)(i)(C) of this section shall be determined according to the following formula:

$$V_{\text{RIN}} = \text{EV} * V_s * R$$

Where:

$V_{\text{RIN}}$  = RIN volume, in gallons, for use in determining the number of cellulosic biofuel gallon-RINs that shall be generated for the batch.

EV = Equivalence value for the batch of renewable fuel per § 80.1415.

$V_s$  = Standardized volume of the batch of renewable fuel at 60 °F, in gallons, calculated in accordance with paragraph (f)(8) of this section.

R = The calculated non-fossil fraction of the fuel as measured by a carbon-14 dating test method as provided in paragraph (f)(9) of this section.

(vi) The D code that shall be used in the RINs generated to represent separated yard waste, food waste, and MSW shall be the D code specified in Table 1 to this section, or a D code as approved by the Administrator, which corresponds to the pathway that describes the producer's operations and feedstocks.

(6) *Renewable fuel neither covered by the pathways in Table 1 to this section, nor given an approval by the Administrator for use of a specific D code.* If none

of the pathways described in Table 1 to this section apply to a producer's operations, and the producer has not received approval for the use of a specific D code by the Administrator, the party may generate RINs if the fuel from its facility is made from renewable biomass and qualifies for an exemption under § 80.1403 from the requirement that renewable fuel achieve at least a 20 percent reduction in lifecycle greenhouse gas emissions compared to base-line lifecycle greenhouse gas emissions.

(i) The number of gallon-RINs that shall be generated for a batch of renewable fuel that qualifies for an exemption from the 20 percent GHG reduction requirements under § 80.1403 shall be equal to a volume calculated according to the following formula:

$$V_{\text{RIN}} = EV * V_s$$

Where:

$V_{\text{RIN}}$  = RIN volume, in gallons, for use in determining the number of gallon-RINs that shall be generated for the batch.

EV = Equivalence value for the batch of renewable fuel per § 80.1415.

$V_s$  = Standardized volume of the batch of renewable fuel at 60 °F, in gallons, calculated in accordance with paragraph (f)(8) of this section.

(ii) A D code of 6 shall be used in the RINs generated under this paragraph (f)(6).

(7) *Determination of feedstock energy content factors.* (i) For purposes of paragraphs (f)(3)(vi) and (f)(4)(i)(A)(2) of this section, producers must specify the value for E, the energy content of the components of the feedstock that are converted to renewable fuel, used in the calculation of the feedstock energy value FE.

(ii) The value for E shall represent the higher or gross calorific heating value for a feedstock on a zero moisture basis.

(iii) Producers must specify the value for E for each type of feedstock at least once per calendar year.

(iv) A producer must use default values for E as provided in paragraph (f)(7)(vi) of this section, or must determine alternative values for its own feedstocks according to paragraph (f)(7)(v) of this section.

(v) Producers that do not use a default value for E must use the following test methods, or alternative

test methods as approved by EPA, to determine the value of E. The value of E shall be based upon the test results of a sample of feedstock that, based upon good engineering judgment, is representative of the feedstocks used to produce renewable fuel:

(A) ASTM E 870 or ASTM E 711 for gross calorific value (both incorporated by reference, see § 80.1468).

(B) ASTM D 4442 or ASTM D 4444 for moisture content (both incorporated by reference, see § 80.1468).

(vi) *Default values for E.*

(A) Starch: 7,600 Btu/lb.

(B) Sugar: 7,300 Btu/lb.

(C) Vegetable oil: 17,000 Btu/lb.

(D) Waste cooking oil or trap grease: 16,600 Btu/lb.

(E) Tallow or fat: 16,200 Btu/lb.

(F) Manure: 6,900 Btu/lb.

(G) Woody biomass: 8,400 Btu/lb.

(H) Herbaceous biomass: 7,300 Btu/lb.

(I) Yard wastes: 2,900 Btu/lb.

(J) Biogas: 11,000 Btu/lb.

(K) Food waste: 2,000 Btu/lb.

(L) Paper: 7,200 Btu/lb.

(M) Crude oil: 19,100 Btu/lb.

(N) Coal—bituminous: 12,200 Btu/lb.

(O) Coal—anthracite: 13,300 Btu/lb.

(P) Coal—lignite or sub-bituminous: 7,900 Btu/lb.

(Q) Natural gas: 19,700 Btu/lb.

(R) Tires or rubber: 16,000 Btu/lb.

(S) Plastic: 19,000 Btu/lb.

(8) *Standardization of volumes.* In determining the standardized volume of a batch of renewable fuel for purposes of generating RINs under this paragraph (f), the batch volumes shall be adjusted to a standard temperature of 60 °F.

(i) For ethanol, the following formula shall be used:

$$V_{s,c} = V_{a,c} * (-0.0006301 * T + 1.0378)$$

Where:

$V_{s,c}$  = Standardized volume of ethanol at 60 °F, in gallons.

$V_{a,c}$  = Actual volume of ethanol, in gallons.

T = Actual temperature of the batch, in °F.

(ii) For biodiesel (mono-alkyl esters), one of the following two methods for biodiesel temperature standardization to 60 °Fahrenheit (°F) shall be used

$$(A) V_{s,b} = V_{a,b} * (-0.00045767 * T + 1.02746025)$$

Where

$V_{s,b}$  = Standardized volume of biodiesel at 60 °F, in gallons.

$V_{a,b}$  = Actual volume of biodiesel, in gallons.  
 $T$  = Actual temperature of the batch, in °F.

(B) The standardized volume of biodiesel at 60 °F, in gallons, as calculated from the use of the American Petroleum Institute Refined Products Table 6B, as referenced in ASTM D 1250 (incorporated by reference, see §80.1468).

(iii) For other renewable fuels, an appropriate formula commonly accepted by the industry shall be used to standardize the actual volume to 60 °F. Formulas used must be reported to EPA, and may be determined to be inappropriate.

(9) *Use of radiocarbon dating test methods.* (i) Parties may use a radiocarbon dating test method for determination of the renewable fraction of a fuel  $R$  used to determine  $V_{RIN}$  as provided in paragraphs (f)(4) and (f)(5) of this section.

(ii) Parties must use Method B or Method C of ASTM D 6866 (incorporated by reference, see §80.1468), or an alternative test method as approved by EPA.

(iii) For each batch of fuel, the value of  $R$  must be based on:

(A) A radiocarbon dating test of the batch of fuel produced; or

(B) A radiocarbon dating test of a composite sample of previously produced fuel, if all of the following conditions are met:

(1) Based upon good engineering judgment, the renewable fraction of the composite sample must be representative of the batch of fuel produced.

(2) The composite sample is comprised of a volume weighted combination of samples from every batch of partially renewable transportation fuel produced by the party over a period not to exceed one calendar month, or more frequently if necessary to ensure that the test results are representative of the renewable fraction of the partially renewable fuel.

(3) The composite sample must be well mixed prior to testing.

(4) A volume of each composite sample must be retained for a minimum of two years, and be of sufficient volume to permit two additional tests to be conducted.

(iv) If the party is using the composite sampling approach according to paragraph (f)(9)(iii)(B) of this section,

the party may estimate the value of  $R$  for use in generating RINs in the first month if all of the following conditions are met:

(A) The estimate of  $R$  for the first month is based on information on the composition of the feedstock;

(B) The party calculates  $R$  in the second month based on the application of a radiocarbon dating test on a composite sample pursuant to (f)(9)(iii)(B) of this section; and

(C) The party adjusts the value of  $R$  used to generate RINs in the second month using the following formula

$$R_{i+1,adj} = 2 \times R_{i+1,calc} - R_{i,est}$$

Where

$R_{i+1,adj}$  = Adjusted value of  $R$  for use in generating RINs in month the second month  $i+1$ .

$R_{i+1,calc}$  = Calculated value of  $R$  in second month  $i+1$  by applying a radiocarbon dating test method to a composite sample of fuel.

$R_{i,est}$  = Estimate of  $R$  for the first month  $i$ .

(10)(i) For purposes of this section, renewable electricity or biogas that is not introduced into a distribution system with fuels derived from non-renewable feedstocks is considered renewable fuel and the producer may generate RINs if all of the following apply:

(A) The fuel is produced from renewable biomass and qualifies for a D code in Table 1 to this section or has received approval for use of a D code by the Administrator;

(B) The fuel producer has entered into a written contract for the sale and use of a specific quantity of renewable electricity or biogas as transportation fuel; and

(C) The renewable electricity or biogas is used as a transportation fuel.

(ii) A producer of renewable electricity that is generated by co-firing a combination of renewable biomass and fossil fuel may generate RINs only for the portion attributable to the renewable biomass, using the procedure described in paragraph (f)(4) of this section.

(11)(i) For purposes of this section, renewable electricity or biogas that is introduced into a commercial distribution system may be considered renewable fuel and the producer may generate RINs if:

(A) The fuel is produced from renewable biomass and qualifies for a D code in Table 1 of this section or has received approval for use of a D code by the Administrator;

(B) The fuel producer has entered into a written contract for the sale of a specific quantity of fuel derived from renewable biomass sources with a party that uses fuel taken from a commercial distribution system for transportation purposes, and such fuel has been introduced into that commercial distribution system (e.g., pipeline, transmission line); and

(C) The quantity of biogas or renewable electricity for which RINs were generated was sold for use as transportation fuel and for no other purposes.

(ii) For biogas that is introduced into a commercial distribution system, the producer may generate RINs only for the volume of biogas that has been gathered, processed, and injected into a common carrier pipeline if:

(A) The gas that is ultimately withdrawn from that pipeline for transportation purposes is withdrawn in a manner and at a time consistent with the transport of fuel between the injection and withdrawal points; and

(B) The volume and heat content of biogas injected into the pipeline and the volume of gas used as transportation fuel are measured by continuous metering.

(iii) The fuel used for transportation purposes is considered produced from renewable biomass only to the extent that:

(A) The amount of fuel sold for use as transportation fuel matches the amount of fuel derived from renewable biomass that the producer contracted to have placed into the commercial distribution system; and

(B) No other party relied upon the contracted volume of biogas for the creation of RINs.

(iv) For renewable electricity that is generated by co-firing a combination of renewable biomass and fossil fuel, the producer may generate RINs only for the portion attributable to the renewable biomass, using the procedure described in paragraph (f)(4) of this section.

(12) For purposes of Table 1 to this section, process heat produced from

combustion of gas at a renewable fuel facility is considered derived from biomass if the gas is biogas.

(i) For biogas directly transported to the facility without being placed in a commercial distribution system, all of the following conditions must be met:

(A) The producer has entered into a written contract for the procurement of a specific volume of biogas with a specific heat content.

(B) The volume of biogas was sold to the renewable fuel production facility, and to no other facility.

(C) The volume and heat content of biogas injected into the pipeline and the volume of gas used as process heat are measured by continuous metering.

(ii) For biogas that has been gathered, processed and injected into a common carrier pipeline, all of the following conditions must be met:

(A) The producer has entered into a written contract for the procurement of a specific volume of biogas with a specific heat content.

(B) The volume of biogas was sold to the renewable fuel production facility, and to no other facility.

(C) The volume of biogas that is withdrawn from the pipeline is withdrawn in a manner and at a time consistent with the transport of fuel between the injection and withdrawal points.

(D) The volume and heat content of biogas injected into the pipeline and the volume of gas used as process heat are measured by continuous metering.

(E) The common carrier pipeline into which the biogas is placed ultimately serves the producer's renewable fuel facility.

(iii) The process heat produced from combustion of gas at a renewable fuel facility described in paragraph (f)(12)(i) of this section shall not be considered derived from biomass if any other party relied upon the contracted volume of biogas for the creation of RINs.

(13) In order for facilities to satisfy the requirements of the advanced biofuel grain sorghum pathway all of the following conditions (in addition to other applicable requirements) apply.

(i) The quantity of electricity used at the site that is purchased from the grid must be measured and recorded by continuous metering.

(ii) All electricity used on-site that is not purchased from the grid must be produced on-site from biogas from landfills, waste treatment plants, and/or waste digesters.

(iii) For biogas directly transported to the facility without being placed in a commercial distribution system, all of the following conditions must be met:

(A) The producer has entered into a written contract for the procurement of biogas that specifies the volume of biogas, its heat content, and that the biogas must be derived from a landfill, waste treatment plant and/or waste digester.

(B) The volume of biogas was sold to the renewable fuel production facility, and to no other facility.

(C) The volume and heat content of biogas injected into the pipeline and the volume of gas used at the renewable fuel production facility are measured by continuous metering.

(iv) [Reserved]

(v) For biogas that has been gathered, processed and injected into a common carrier pipeline, all of the following conditions must be met:

(A) The producer has entered into a written contract for the procurement of biogas that specifies a specific volume of biogas, with a specific heat content, and that the biogas must be derived from a landfill, waste treatment plant and/or waste digester.

(B) The volume of biogas was sold to the renewable fuel production facility, and to no other facility.

(C) The volume of biogas that is withdrawn from the pipeline is withdrawn in a manner and at a time consistent with the transport of fuel between the injection and withdrawal points.

(D) The volume and heat content of biogas injected into the pipeline and the volume of gas used at the renewable fuel production facility are measured by continuous metering.

(E) The common carrier pipeline into which the biogas is placed ultimately serves the producer's renewable fuel facility.

(vi) No party relied upon the contracted volume of biogas for the creation of RINs.

(g) *Delayed RIN generation*—(1) Parties who produce or import renewable fuel may elect to generate delayed RINs to represent renewable fuel volumes that have already been transferred to another party if those renewable fuel volumes meet all of the following requirements.

(i) The renewable fuel volumes can be described by a new pathway that has been added to Table 1 to § 80.1426, or approved by petition pursuant to § 80.1416, after July 1, 2010.

(A) For new pathways that EPA approves in response to petitions submitted pursuant to § 80.1416, complete petitions must be received by EPA by January 31, 2011.

(B) [Reserved]

(ii) The renewable fuel volumes can be described by a pathway that:

(A) Is biodiesel that is made from canola oil through transesterification using natural gas or biomass for process energy; or

(B) EPA has determined was in use as of July 1, 2010, for the primary purpose of producing transportation fuel, heating oil, or jet fuel for commercial sale.

(iii) The renewable fuel volumes were not designated or intended for export from the 48 contiguous states plus Hawaii by the renewable fuel producer or importer, and the producer or importer of the renewable fuel volumes does not know or have reason to know that the volumes were exported from the 48 contiguous states plus Hawaii.

(2) When a new pathway is added to Table 1 to § 80.1426 or approved by petition pursuant to § 80.1416, EPA will specify in its approval action the effective date on which the new pathway becomes valid for the generation of RINs and whether the fuel in question meets the requirements of paragraph (g)(1)(ii) of this section.

(i) The effective date for the pathway describing biodiesel that is made from canola oil through transesterification using natural gas or biomass for process energy is September 28, 2010.

(ii) [Reserved]

(3) Delayed RINs can only be generated to represent renewable fuel volumes produced in the 48 contiguous states plus Hawaii or imported into the

48 contiguous states plus Hawaii between July 1, 2010, and the earlier of either of the following dates:

(i) The effective date (identified pursuant to paragraph (g)(2) of this section) of the new pathway through which the fuel in question was produced; or

(ii) December 31, 2011.

(4) Delayed RINs must be generated no later than 60 days after the effective date (identified pursuant to paragraph (g)(2) of this section) of the pathway by which the fuel in question was produced.

(5) A party authorized pursuant to paragraph (g)(1) of this section to generate delayed RINs, and electing to do so, who generated RINs pursuant to § 80.1426(f)(6) for fuel produced through a pathway described in paragraph (g)(1) of this section, and transferred those RINs with renewable fuel volumes between July 1, 2010 and the effective date (identified pursuant to paragraph (g)(2) of this section) of that pathway, must retire a number of gallon-RINs prior to generating delayed RINs.

(i) The number of gallon-RINs retired by a party pursuant to this paragraph must not exceed the number of gallon-RINs originally generated by the party to represent fuel described in paragraph (g)(1) of this section that was produced in the 48 contiguous states plus Hawaii or imported into the 48 contiguous states plus Hawaii, and transferred to another party, between July 1, 2010 and the earlier of either of the following dates:

(A) The effective date (identified pursuant to paragraph (g)(2) of this section) of the new pathway through which the fuel in question was produced; or

(B) December 31, 2011.

(ii) Retired RINs must have a D code of 6.

(iii) Retired RINs must have a K code of 2.

(iv) Retired RINs must have been generated in the same year as the gallon-RINs originally generated by the party to represent fuel described in paragraph (g)(1) of this section.

(A) For gallon-RINs originally generated in 2010 to represent fuel described in paragraph (g)(1) of this sec-

tion, the generation year of retired RINs shall be 2010.

(B) For gallon-RINs originally generated in 2011 to represent fuel described in paragraph (g)(1) of this section, the generation year of retired RINs shall be 2011.

(6) For parties that retire RINs pursuant to paragraph (g)(5) of this section, the number of delayed gallon-RINs generated shall be equal to the number of gallon-RINs retired in accordance with paragraph (g)(5) of this section.

(7) A party authorized pursuant to paragraph (g)(1) of this section to generate delayed RINs, and electing to do so, who did not generate RINs pursuant to § 80.1426(f)(6) for renewable fuel produced in the 48 contiguous states plus Hawaii or imported into the 48 contiguous states plus Hawaii between July 1, 2010 and the effective date (identified pursuant to paragraph (g)(2) of this section) of a new pathway for the fuel in question, may generate a number of delayed gallon-RINs for that renewable fuel in accordance with paragraph (f) of this section.

(i) The standardized volume of fuel ( $V_s$ ) used by a party to determine the RIN volume ( $V_{RIN}$ ) under paragraph (f) of this section shall be the standardized volume of the fuel described in paragraph (g)(1)(i) of this section that was produced in the 48 contiguous states plus Hawaii or imported into the 48 contiguous states plus Hawaii by the party, and transferred to another party, between July 1, 2010 and the earlier of either of the following dates:

(A) The effective date (identified pursuant to paragraph (g)(2) of this section) of the new pathway through which the fuel in question was produced; or

(B) December 31, 2011.

(ii) [Reserved]

(8) The renewable fuel for which delayed RINs are generated must be described by a pathway that satisfies the requirements of paragraph (g)(1) of this section.

(9) All delayed RINs generated by a renewable fuel producer or importer must be generated within EMTS on the same date.

(10) The generation year of delayed RINs as designated in EMTS shall be

the year that the renewable fuel volumes they represent were either produced or imported into the 48 contiguous states plus Hawaii.

(i) For renewable fuel volumes produced or imported in 2010, the generation year of delayed RINs shall be 2010 and the production date specified in EMTS shall be 07/01/2010.

(ii) For renewable fuel volumes produced or imported in 2011, the generation year of delayed RINs shall be 2011 and the production date specified in EMTS shall be 01/01/2011.

(11) Delayed RINs shall be generated as assigned RINs in EMTS with a batch number that begins with "DRN", and then immediately separated by the RIN generator.

(12) The D code that shall be used in delayed RINs shall be the D code which corresponds to the new pathway.

(13) Except as provided in this paragraph (g), all other provisions in this Subpart M that pertain to the identification of fuels for which RINs may be generated, the generation and use of RINs, and recordkeeping and reporting, are also applicable to delayed RINs.

[75 FR 14863, Mar. 26, 2010, as amended at 75 FR 26038, May 10, 2010; 75 FR 37733, June 30, 2010; 75 FR 59632, Sept. 28, 2010; 75 FR 76828, Dec. 9, 2010; 75 FR 79977, Dec. 21, 2010; 77 FR 1355, Jan. 9, 2012; 77 FR 61294, Oct. 9, 2012; 77 FR 74605, Dec. 17, 2012; 78 FR 14216, Mar. 5, 2013]

### § 80.1427 How are RINs used to demonstrate compliance?

(a) *Renewable Volume Obligations.* (1) Except as specified in paragraph (b) of this section or § 80.1456, each party that is an obligated party under § 80.1406 and is obligated to meet the Renewable Volume Obligations under § 80.1407, or is an exporter of renewable fuels that is obligated to meet Renewable Volume Obligations under § 80.1430, must demonstrate pursuant to § 80.1451(a)(1) that it is retiring for compliance purposes a sufficient number of RINs to satisfy the following equations:

(i) *Cellulosic biofuel.*

$$(\Sigma \text{RINNUM})_{\text{CB},i} + (\Sigma \text{RINNUM})_{\text{CB},i-1} = \text{RVO}_{\text{CB},i}$$

Where:

$(\Sigma \text{RINNUM})_{\text{CB},i}$  = Sum of all owned gallon-RINs that are valid for use in complying with the cellulosic biofuel RVO, were

generated in year  $i$ , and are being applied towards the  $\text{RVO}_{\text{CB},i}$ , in gallons.

$(\Sigma \text{RINNUM})_{\text{CB},i-1}$  = Sum of all owned gallon-RINs that are valid for use in complying with the cellulosic biofuel RVO, were generated in year  $i-1$ , and are being applied towards the  $\text{RVO}_{\text{CB},i}$ , in gallons.

$\text{RVO}_{\text{CB},i}$  = The Renewable Volume Obligation for cellulosic biofuel for the obligated party or renewable fuel exporter for calendar year  $i$ , in gallons, pursuant to § 80.1407 or § 80.1430.

(ii) *Biomass-based diesel.* Use the equation in this paragraph, except as provided in paragraph (a)(7) of this section.

$$(\Sigma \text{RINNUM})_{\text{BBD},i} + (\Sigma \text{RINNUM})_{\text{BBD},i-1} = \text{RVO}_{\text{BBD},i}$$

Where:

$(\Sigma \text{RINNUM})_{\text{BBD},i}$  = Sum of all owned gallon-RINs that are valid for use in complying with the biomass-based diesel RVO, were generated in year  $i$ , and are being applied towards the  $\text{RVO}_{\text{BBD},i}$ , in gallons.

$(\Sigma \text{RINNUM})_{\text{BBD},i-1}$  = Sum of all owned gallon-RINs that are valid for use in complying with the biomass-based diesel RVO, were generated in year  $i-1$ , and are being applied towards the  $\text{RVO}_{\text{BBD},i}$ , in gallons.

$\text{RVO}_{\text{BBD},i}$  = The Renewable Volume Obligation for biomass-based diesel for the obligated party or renewable fuel exporter for calendar year  $i$  after 2010, in gallons, pursuant to § 80.1407 or § 80.1430.

(iii) *Advanced biofuel.*

$$(\Sigma \text{RINNUM})_{\text{AB},i} + (\Sigma \text{RINNUM})_{\text{AB},i-1} = \text{RVO}_{\text{AB},i}$$

Where

$(\Sigma \text{RINNUM})_{\text{AB},i}$  = Sum of all owned gallon-RINs that are valid for use in complying with the advanced biofuel RVO, were generated in year  $i$ , and are being applied towards the  $\text{RVO}_{\text{AB},i}$ , in gallons.

$(\Sigma \text{RINNUM})_{\text{AB},i-1}$  = Sum of all owned gallon-RINs that are valid for use in complying with the advanced biofuel RVO, were generated in year  $i-1$ , and are being applied towards the  $\text{RVO}_{\text{AB},i}$ , in gallons.

$\text{RVO}_{\text{AB},i}$  = The Renewable Volume Obligation for advanced biofuel for the obligated party or renewable fuel exporter for calendar year  $i$ , in gallons, pursuant to § 80.1407 or § 80.1430.

(iv) *Renewable fuel.*

$$(\Sigma \text{RINNUM})_{\text{RF},i} + (\Sigma \text{RINNUM})_{\text{RF},i-1} = \text{RVO}_{\text{RF},i}$$

Where:

$(\Sigma \text{RINNUM})_{\text{RF},i}$  = Sum of all owned gallon-RINs that are valid for use in complying



with the renewable fuel RVO, were generated in year  $i$ , and are being applied towards the  $RVO_{RF,i}$ , in gallons.

$(\Sigma RINNUM)_{RF,i-1}$  = Sum of all owned gallon-RINs that are valid for use in complying with the renewable fuel RVO, were generated in year  $i-1$ , and are being applied towards the  $RVO_{RF,i}$ , in gallons.

$RVO_{RF,i}$  = The Renewable Volume Obligation for renewable fuel for the obligated party or renewable fuel exporter for calendar year  $i$ , in gallons, pursuant to § 80.1407 or § 80.1430.

(2) Except as described in paragraph (a)(4) of this section, RINs that are valid for use in complying with each Renewable Volume Obligation are determined by their D codes.

(i) RINs with a D code of 3 or 7 are valid for compliance with the cellulosic biofuel RVO.

(ii) RINs with a D code of 4 or 7 are valid for compliance with the biomass-based diesel RVO.

(iii) RINs with a D code of 3, 4, 5, or 7 are valid for compliance with the advanced biofuel RVO.

(iv) RINs with a D code of 3, 4, 5, 6, or 7 are valid for compliance with the renewable fuel RVO.

(3)(i) Except as provided in paragraph (a)(3)(ii) of this section, a party may use the same RIN to demonstrate compliance with more than one RVO so long as it is valid for compliance with all RVOs to which it is applied.

(ii) A cellulosic diesel RIN with a D code of 7 cannot be used to demonstrate compliance with both a cellulosic biofuel RVO and a biomass-based diesel RVO.

(4) Notwithstanding the requirements of § 80.1428(c) or paragraph (a)(6)(i) of this section, for purposes of demonstrating compliance for calendar years 2010 or 2011, RINs generated pursuant to § 80.1126 that have not been used for compliance purposes may be used for compliance in 2010 or 2011, as follows, insofar as permissible pursuant to paragraphs (a)(5) and (a)(7)(iii) of this section:

(i) A RIN generated pursuant to § 80.1126 with a D code of 2 and an RR code of 15, 16, or 17 is deemed equivalent to a RIN generated pursuant to § 80.1426 having a D code of 4.

(ii) A RIN generated pursuant to § 80.1126 with a D code of 1 is deemed

equivalent to a RIN generated pursuant to § 80.1426 having a D code of 3.

(iii) All other RINs generated pursuant to § 80.1126 are deemed equivalent to RINs generated pursuant to § 80.1426 having D codes of 6.

(iv) A RIN generated pursuant to § 80.1126 that was retired pursuant to § 80.1129(e) because the associated volume of fuel was not used as motor vehicle fuel may be reinstated for use in complying with a 2010 RVO pursuant to § 80.1429(g).

(5) The value of  $(\Sigma RINNUM)_{i-1}$  may not exceed values determined by the following inequalities except as provided in paragraph (a)(7)(iii) of this section and § 80.1442(d)

$$(\Sigma RINNUM)_{CB,i-1} \leq 0.20 * RVO_{CB,i}$$

$$(\Sigma RINNUM)_{BBD,i-1} \leq 0.20 * RVO_{BBD,i}$$

$$(\Sigma RINNUM)_{AB,i-1} \leq 0.20 * RVO_{AB,i}$$

$$(\Sigma RINNUM)_{RF,i-1} \leq 0.20 * RVO_{RF,i}$$

(6) Except as provided in paragraph (a)(7) of this section:

(i) RINs may only be used to demonstrate compliance with the RVOs for the calendar year in which they were generated or the following calendar year.

(ii) RINs used to demonstrate compliance in one year cannot be used to demonstrate compliance in any other year.

(7) *Biomass-based diesel in 2010.*

(i) Prior to determining compliance with the 2010 biomass-based diesel RVO, obligated parties may reduce the value of  $RVO_{BBD,2010}$  by an amount equal to the sum of all 2008 and 2009 RINs that they used for compliance purposes for calendar year 2009 which have a D code of 2 and an RR code of 15, 16, or 17.

(ii) For calendar year 2010 only, the following equation shall be used to determine compliance with the biomass-based diesel RVO instead of the equation in paragraph (a)(1)(ii) of this section

$$(\Sigma RINNUM)_{BBD,2010} + (\Sigma RINNUM)_{BBD,2009} + (\Sigma RINNUM)_{BBD,2008} = RVO_{BBD,2010}$$

Where

$(\Sigma RINNUM)_{BBD,2010}$  = Sum of all owned gallon-RINs that are valid for use in complying with the biomass-based diesel RVO, were generated in year 2010, and are being applied towards the  $RVO_{BBD,2010}$ , in gallons.

$(\Sigma \text{RINNUM})_{\text{BDD},2009}$  = Sum of all owned gallon-RINs that are valid for use in complying with the biomass-based diesel RVO, were generated in year 2009, have not previously been used for compliance purposes, and are being applied towards the  $\text{RVO}_{\text{BDD},2010}$ , in gallons.

$(\Sigma \text{RINNUM})_{\text{BDD},2008}$  = Sum of all owned gallon-RINs that are valid for use in complying with the biomass-based diesel RVO, were generated in year 2008, have not previously been used for compliance purposes, and are being applied towards the  $\text{RVO}_{\text{BDD},2010}$ , in gallons.

$\text{RVO}_{\text{BDD},2010}$  = The Renewable Volume Obligation for biomass-based diesel for the obligated party for calendar year 2010, in gallons, pursuant to § 80.1407 or § 80.1430, as adjusted by paragraph (a)(7)(i) of this section.

(iii) The values of  $(\Sigma \text{RINNUM})_{2008}$  and  $(\Sigma \text{RINNUM})_{2009}$  may not exceed values determined by both of the following inequalities

$$(\Sigma \text{RINNUM})_{\text{BDD},2008} \leq 0.087 * \text{RVO}_{\text{BDD},2010}$$

$$(\Sigma \text{RINNUM})_{\text{BDD},2008} + (\Sigma \text{RINNUM})_{\text{BDD},2009} \leq 0.20 * \text{RVO}_{\text{BDD},2010}$$

(8) A party may only use a RIN for purposes of meeting the requirements of paragraph (a)(1) or (a)(7) of this section if that RIN is a separated RIN with a K code of 2 obtained in accordance with §§ 80.1428 and 80.1429.

(9) The number of gallon-RINs associated with a given batch-RIN that can be used for compliance with the RVOs shall be calculated from the following formula:

$$\text{RINNUM} = \text{EEEEEEEE} - \text{SSSSSSSS} + 1$$

Where:

$\text{RINNUM}$  = Number of gallon-RINs associated with a batch-RIN, where each gallon-RIN represents one gallon of renewable fuel for compliance purposes.

$\text{EEEEEEEE}$  = Batch-RIN component identifying the last gallon-RIN associated with the batch-RIN.

$\text{SSSSSSSS}$  = Batch-RIN component identifying the first gallon-RIN associated with the batch-RIN.

(b) *Deficit carryovers.* (1) An obligated party or an exporter of renewable fuel that fails to meet the requirements of paragraph (a)(1) or (a)(7) of this section for calendar year  $i$  is permitted to carry a deficit into year  $i+1$  under the following conditions:

(i) The party did not carry a deficit into calendar year  $i$  from calendar year  $i-1$  for the same RVO.

(ii) The party subsequently meets the requirements of paragraph (a)(1) of this section for calendar year  $i+1$  and carries no deficit into year  $i+2$  for the same RVO.

(iii) For compliance with the biomass-based diesel RVO in calendar year 2011, the deficit which is carried over from 2010 is no larger than 57% of the party's 2010 biomass-based diesel RVO as determined prior to any adjustment applied pursuant to paragraph (a)(7)(i) of this section.

(iv) The party uses the same compliance approach in year  $i+1$  as it did in year  $i$ , as provided in § 80.1406(c)(2).

(2) A deficit is calculated according to the following formula:

$$D_i = \text{RVO}_i - [(\Sigma \text{RINNUM})_i + (\Sigma \text{RINNUM})_{i-1}]$$

Where:

$D_i$  = The deficit, in gallons, generated in calendar year  $i$  that must be carried over to year  $i+1$  if allowed pursuant to paragraph (b)(1) of this section.

$\text{RVO}_i$  = The Renewable Volume Obligation for the obligated party or renewable fuel exporter for calendar year  $i$ , in gallons.

$(\Sigma \text{RINNUM})_i$  = Sum of all acquired gallon-RINs that were generated in year  $i$  and are being applied towards the  $\text{RVO}_i$ , in gallons.

$(\Sigma \text{RINNUM})_{i-1}$  = Sum of all acquired gallon-RINs that were generated in year  $i-1$  and are being applied towards the  $\text{RVO}_i$ , in gallons.

[75 FR 14863, Mar. 26, 2010, as amended at 75 FR 26042, May 10, 2010]

## § 80.1428 General requirements for RIN distribution.

(a) *RINs assigned to volumes of renewable fuel.*

(1) *Assigned RIN*, for the purposes of this subpart, means a RIN assigned to a volume of renewable fuel pursuant to § 80.1426(e) with a K code of 1.

(2) Except as provided in § 80.1429, no person can separate a RIN that has been assigned to a batch pursuant to § 80.1426(e).

(3) An assigned RIN cannot be transferred to another person without simultaneously transferring a volume of renewable fuel to that same person.

(4) No more than 2.5 assigned gallon-RINs with a K code of 1 can be transferred to another person with every gallon of renewable fuel transferred to that same person.

(5)(i) On each of the dates listed in paragraph (a)(5)(ii) of this section in any calendar year, the following equation must be satisfied for assigned RINs and volumes of renewable fuel owned by a person:

$$\Sigma(\text{RIN})_D \leq \Sigma(V_{si} * 2.5)_D$$

Where:

D = Applicable date.

$\Sigma(\text{RIN})_D$  = Sum of all assigned gallon-RINs with a K code of 1 that are owned on date D.

$(V_{si})_D$  = Volume *i* of renewable fuel owned on date D, standardized to 60 °F, in gallons.

(ii) The applicable dates are March 31, June 30, September 30, and December 31.

(6) Any transfer of ownership of assigned RINs must be documented on product transfer documents generated pursuant to § 80.1453.

(i) The RIN must be recorded on the product transfer document used to transfer ownership of the volume of renewable fuel to another person; or

(ii) The RIN must be recorded on a separate product transfer document transferred to the same person on the same day as the product transfer document used to transfer ownership of the volume of renewable fuel.

(b) *RINs separated from volumes of renewable fuel.* (1) *Separated RIN*, for the purposes of this subpart, means a RIN with a K code of 2 that has been separated from a volume of renewable fuel pursuant to § 80.1429.

(2) Any person that has registered pursuant to § 80.1450 can own a separated RIN.

(3) Separated RINs can be transferred any number of times.

(c) *RIN expiration.* Except as provided in § 80.1427(a)(7), a RIN is valid for compliance during the calendar year in which it was generated, or the following calendar year. Any RIN that is not used for compliance purposes for the calendar year in which it was generated, or for the following calendar year, will be considered an expired RIN. Pursuant to § 80.1431(a), an expired RIN will be considered an invalid RIN

and cannot be used for compliance purposes.

(d) Any batch-RIN can be divided into multiple batch-RINs, each representing a smaller number of gallon-RINs, if all of the following conditions are met:

(1) All RIN components other than SSSSSSSS and EEEEEEEE are identical for the original parent and newly formed daughter RINs.

(2) The sum of the gallon-RINs associated with the multiple daughter batch-RINs is equal to the gallon-RINs associated with the parent batch-RIN.

[75 FR 14863, Mar. 26, 2010, as amended at 75 FR 26042, May 10, 2010]

#### § 80.1429 Requirements for separating RINs from volumes of renewable fuel.

(a)(1) Separation of a RIN from a volume of renewable fuel means termination of the assignment of the RIN to a volume of renewable fuel.

(2) RINs that have been separated from volumes of renewable fuel become separated RINs subject to the provisions of § 80.1428(b).

(b) A RIN that is assigned to a volume of renewable fuel can be separated from that volume only under one of the following conditions:

(1) Except as provided in paragraphs (b)(7) and (b)(9) of this section, a party that is an obligated party according to § 80.1406 must separate any RINs that have been assigned to a volume of renewable fuel if that party owns that volume.

(2) Except as provided in paragraph (b)(6) of this section, any party that owns a volume of renewable fuel must separate any RINs that have been assigned to that volume once the volume is blended with gasoline or fossil-based diesel to produce a transportation fuel, heating oil, or jet fuel. A party may separate up to 2.5 RINs per gallon of blended renewable fuel.

(3) Any party that exports a volume of renewable fuel must separate any RINs that have been assigned to the exported volume. A party may separate up to 2.5 RINs per gallon of exported renewable fuel.

(4) Any party that produces, imports, owns, sells, or uses a volume of neat renewable fuel, or a blend of renewable

fuel and diesel fuel, must separate any RINs that have been assigned to that volume of neat renewable fuel or that blend if:

(i) The party designates the neat renewable fuel or blend as transportation fuel, heating oil, or jet fuel; and

(ii) The neat renewable fuel or blend is used without further blending, in the designated form, as transportation fuel, heating oil, or jet fuel.

(5) Any party that produces, imports, owns, sells, or uses a volume of electricity or biogas for which RINs have been generated in accordance with § 80.1426(f) must separate any RINs that have been assigned to that volume of renewable electricity or biogas if:

(i) The party designates the electricity or biogas as transportation fuel; and

(ii) The electricity or biogas is used as transportation fuel.

(6) RINs assigned to a volume of biodiesel (mono-alkyl ester) can only be separated from that volume pursuant to paragraph (b)(2) of this section if such biodiesel is blended into diesel fuel at a concentration of 80 volume percent biodiesel (mono-alkyl ester) or less.

(i) This paragraph (b)(6) shall not apply to biodiesel owned by obligated parties or to exported volumes of biodiesel.

(ii) This paragraph (b)(6) shall not apply to parties meeting the requirements of paragraph (b)(4) of this section.

(7) For RINs that an obligated party generates for renewable fuel that has not been blended into gasoline or diesel to produce a transportation fuel, heating oil, or jet fuel, the obligated party can only separate such RINs from volumes of renewable fuel if the number of gallon-RINs separated in a calendar year are less than or equal to a limit set as follows:

(i) For RINs with a D code of 3, the limit shall be equal to  $RVO_{CB}$ .

(ii) For RINs with a D code of 4, the limit shall be equal to  $RVO_{BBD}$ .

(iii) For RINs with a D code of 7, the limit shall be equal to the larger of  $RVO_{BBD}$  or  $RVO_{CB}$ .

(iv) For RINs with a D code of 5, the limit shall be equal to  $RVO_{AB} - RVO_{CB} - RVO_{BBD}$ .

(v) For RINs with a D code of 6, the limit shall be equal to  $RVO_{RF} - RVO_{AB}$ .

(8) Small refiners and small refineries may only separate RINs that have been assigned to volumes of renewable fuel that the party blends into gasoline or diesel to produce transportation fuel, heating oil, or jet fuel, or that the party used as transportation fuel, heating oil, or jet fuel. This paragraph (b)(8) shall apply only under the following conditions:

(i) During the calendar year in which the party has received a small refinery exemption under § 80.1441 or a small refiner exemption under § 80.1442; and

(ii) The party is not otherwise an obligated party during the period of time that the small refinery or small refiner exemption is in effect.

(9) Except as provided in paragraphs (b)(2) through (b)(5) and (b)(8) of this section, parties whose non-export renewable volume obligations are solely related to either the importation of products listed in § 80.1407(c) or § 80.1407(e) or to the addition of blendstocks into a volume of finished gasoline, finished diesel fuel, RBOB, or CBOB, can only separate RINs from volumes of renewable fuel if the number of gallon-RINs separated in a calendar year is less than or equal to a limit set as follows:

(i) For RINs with a D code of 3, the limit shall be equal to  $RVO_{CB}$ .

(ii) For RINs with a D code of 4, the limit shall be equal to  $RVO_{BBD}$ .

(iii) For RINs with a D code of 7, the limit shall be equal to the larger of  $RVO_{BBD}$  or  $RVO_{CB}$ .

(iv) For RINs with a D code of 5, the limit shall be equal to  $RVO_{AB} - RVO_{CB} - RVO_{BBD}$ .

(v) For RINs with a D code of 6, the limit shall be equal to  $RVO_{RF} - RVO_{AB}$ .

(c) The party responsible for separating a RIN from a volume of renewable fuel shall change the K code in the RIN from a value of 1 to a value of 2 prior to transferring the RIN to any other party.

(d) Upon and after separation of a RIN from its associated volume of renewable fuel, the separated RIN must be accompanied by a PTD pursuant to § 80.1453 when transferred to another party.

(e) Upon and after separation of a RIN from its associated volume of renewable fuel, product transfer documents used to transfer ownership of the volume must meet the requirements of § 80.1453.

(f) Any party that uses a renewable fuel in any application that is not transportation fuel, heating oil, or jet fuel, or designates a renewable fuel for use as something other than transportation fuel, heating oil, or jet fuel, must retire any RINs received with that renewable fuel and report the retired RINs in the applicable reports under § 80.1451.

(g) Any 2009 or 2010 RINs retired pursuant to § 80.1129 because renewable fuel was used in a nonroad vehicle or nonroad engine (except for ocean-going vessels), or as heating oil or jet fuel may be reinstated by the retiring party for sale or use to demonstrate compliance with a 2010 RVO.

[75 FR 14863, Mar. 26, 2010, as amended at 75 FR 26042, May 10, 2010; 77 FR 1355, Jan. 9, 2012]

#### § 80.1430 Requirements for exporters of renewable fuels.

(a) Any party that owns any amount of renewable fuel, whether in its neat form or blended with gasoline or diesel, that is exported from any of the regions described in § 80.1426(b) shall acquire sufficient RINs to comply with all applicable Renewable Volume Obligations under paragraphs (b) through (e) of this section representing the exported renewable fuel.

(b) *Renewable Volume Obligations.* An exporter of renewable fuel shall determine its Renewable Volume Obligations from the volumes of the renewable fuel exported.

##### (1) *Cellulosic biofuel.*

$$RVO_{CB,i} = \Sigma(VOL_k * EV_k)_i + D_{CB,i-1}$$

Where:

$RVO_{CB,i}$  = The Renewable Volume Obligation for cellulosic biofuel for the exporter for calendar year  $i$ , in gallons.

$k$  = A discrete volume of exported renewable fuel.

$VOL_k$  = The standardized volume of discrete volume  $k$  of exported renewable fuel that the exporter knows or has reason to know is cellulosic biofuel, in gallons, calculated in accordance with § 80.1426(f)(8).

$EV_k$  = The equivalence value associated with discrete volume  $k$ .

$\Sigma$  = Sum involving all volumes of cellulosic biofuel exported.

$D_{CB,i-1}$  = Deficit carryover from the previous year for cellulosic biofuel, in gallons.

##### (2) *Biomass-based diesel.*

$$RVO_{BBD,i} = \Sigma(VOL_k * EV_k)_i + D_{BBD,i-1}$$

Where:

$RVO_{BBD,i}$  = The Renewable Volume Obligation for biomass-based diesel for the exporter for calendar year  $i$ , in gallons.

$k$  = A discrete volume of exported renewable fuel.

$VOL_k$  = The standardized volume of discrete volume  $k$  of exported renewable fuel that is biodiesel or renewable diesel, in gallons, calculated in accordance with § 80.1426(f)(8).

$EV_k$  = The equivalence value associated with discrete volume  $k$ .

$\Sigma$  = Sum involving all volumes of biodiesel or renewable diesel exported.

$D_{BBD,i-1}$  = Deficit carryover from the previous year for biomass-based diesel, in gallons.

##### (3) *Advanced biofuel.*

$$RVO_{AB,i} = \Sigma(VOL_k * EV_k)_i + D_{AB,i-1}$$

Where:

$RVO_{AB,i}$  = The Renewable Volume Obligation for advanced biofuel for the exporter for calendar year  $i$ , in gallons.

$k$  = A discrete volume of exported renewable fuel.

$VOL_k$  = The standardized volume of discrete volume  $k$  of exported renewable fuel that is biodiesel or renewable diesel, or that the exporter knows or has reason to know is cellulosic biofuel or advanced biofuel, in gallons, calculated in accordance with § 80.1426(f)(8).

$EV_k$  = The equivalence value associated with discrete volume  $k$ .

$\Sigma$  = Sum involving all volumes of advanced biofuel exported.

$D_{AB,i-1}$  = Deficit carryover from the previous year for advanced biofuel, in gallons.

##### (4) *Renewable fuel.*

$$RVO_{RF,i} = \Sigma(VOL_k * EV_k)_i + D_{RF,i-1}$$

Where:

$RVO_{RF,i}$  = The Renewable Volume Obligation for renewable fuel for the exporter for calendar year  $i$ , in gallons.

$k$  = A discrete volume of exported renewable fuel.

$VOL_k$  = The standardized volume of discrete volume  $k$  of any exported renewable fuel, in gallons, calculated in accordance with § 80.1426(f)(8).

$EV_k$  = The equivalence value associated with discrete volume  $k$ .

or local authority to report the spillage or disposal.

(b) Except as provided in paragraph (c) of this section, in the event of a reported spillage or disposal of any volume of renewable fuel, the owner of the renewable fuel must retire a number of RINs corresponding to the volume of spilled or disposed of renewable fuel multiplied by its equivalence value.

(1) If the equivalence value for the spilled or disposed of volume may be determined pursuant to § 80.1415 based on its composition, then the appropriate equivalence value shall be used.

(2) If the equivalence value for a spilled or disposed of volume of renewable fuel cannot be determined, the equivalence value shall be 1.0.

(c) If the owner of a volume of renewable fuel that is spilled or disposed of and reported establishes that no RINs were generated to represent the volume, then no RINs shall be retired.

(d) A RIN that is retired under paragraph (b) of this section:

(1) Must be reported as a retired RIN in the applicable reports under § 80.1451.

(2) May not be transferred to another person or used by any obligated party to demonstrate compliance with the party's Renewable Volume Obligations.

#### §§ 80.1433–80.1439 [Reserved]

#### § 80.1440 What are the provisions for blenders who handle and blend less than 125,000 gallons of renewable fuel per year?

(a) Renewable fuel blenders who handle and blend less than 125,000 gallons of renewable fuel per year, and who do not have Renewable Volume Obligations, are permitted to delegate their RIN-related responsibilities to the party directly upstream of them who supplied the renewable fuel for blending.

(b) The RIN-related responsibilities that may be delegated directly upstream include all of the following:

(1) The RIN separation requirements of § 80.1429.

(2) The reporting requirements of § 80.1451.

(3) The recordkeeping requirements of § 80.1454.

(4) The attest engagement requirements of § 80.1464.

(c) For upstream delegation of RIN-related responsibilities, both parties must agree on the delegation, and a quarterly written statement signed by both parties must be included with the reporting party's reports under § 80.1451.

(1) Both parties must keep copies of the signed quarterly written statement agreeing to the upward delegation for 5 years.

(2) Parties delegating their RIN responsibilities upward shall keep copies of their registration forms as submitted to EPA.

(3) A renewable fuel blender who delegates its RIN-related responsibilities under this section will remain liable for any violation of this subpart M associated with its renewable fuel blending activities.

(d) Renewable fuel blenders who handle and blend less than 125,000 gallons of renewable fuel per year and delegate their RIN-related responsibilities under paragraph (b) of this section must register pursuant to § 80.1450(e), and may not own RINs.

(e) Renewable fuel blenders who handle and blend less than 125,000 gallons of renewable fuel per year and who do not opt to delegate their RIN-related responsibilities, or own RINs, will be subject to all requirements stated in paragraph (b) of this section, and all other applicable requirements of this subpart M.

[75 FR 14863, Mar. 26, 2010, as amended at 75 FR 26042, May 10, 2010]

#### § 80.1441 Small refinery exemption.

(a)(1) Transportation fuel produced at a refinery by a refiner, or foreign refiner (as defined at § 80.1465(a)), is exempt from January 1, 2010 through December 31, 2010 from the renewable fuel standards of § 80.1405, and the owner or operator of the refinery, or foreign refinery, is exempt from the requirements that apply to obligated parties under this subpart M for fuel produced at the refinery if the refinery meets the definition of a small refinery under § 80.1401 for calendar year 2006.

(2) The exemption of paragraph (a)(1) of this section shall apply unless a refiner chooses to waive this exemption (as described in paragraph (f) of this section), or the exemption is extended

(as described in paragraph (e) of this section).

(3) For the purposes of this section, the term “refiner” shall include foreign refiners.

(4) This exemption shall only apply to refineries that process crude oil through refinery processing units.

(5) The small refinery exemption is effective immediately, except as specified in paragraph (b)(3) of this section.

(6) Refiners who own refineries that qualified as small under 40 CFR 80.1141 do not need to resubmit a small refinery verification letter under this subpart M. This paragraph (a) does not supersede § 80.1141.

(b)(1) A refiner owning a small refinery must submit a verification letter to EPA containing all of the following information:

(i) The annual average aggregate daily crude oil throughput for the period January 1, 2006 through December 31, 2006 (as determined by dividing the aggregate throughput for the calendar year by the number 365).

(ii) A letter signed by the president, chief operating or chief executive officer of the company, or his/her designee, stating that the information contained in the letter is true to the best of his/her knowledge, and that the refinery was small as of December 31, 2006.

(iii) Name, address, phone number, facsimile number, and e-mail address of a corporate contact person.

(2) Verification letters must be submitted by July 1, 2010 to one of the addresses listed in paragraph (h) of this section.

(3) For foreign refiners the small refinery exemption shall be effective upon approval, by EPA, of a small refinery application. The application must contain all of the elements required for small refinery verification letters (as specified in paragraph (b)(1) of this section), must satisfy the provisions of § 80.1465(f) through (i) and (o), and must be submitted by July 1, 2010 to one of the addresses listed in paragraph (h) of this section.

(4) Small refinery verification letters are not required for those refiners who have already submitted a complete verification letter under subpart K of this part 80. Verification letters submitted under subpart K prior to July 1,

2010 that satisfy the requirements of subpart K shall be deemed to satisfy the requirements for verification letters under this subpart M.

(c) If EPA finds that a refiner provided false or inaccurate information regarding a refinery’s crude throughput (pursuant to paragraph (b)(1)(i) of this section) in its small refinery verification letter, the exemption will be void as of the effective date of these regulations.

(d) If a refiner is complying on an aggregate basis for multiple refineries, any such refiner may exclude from the calculation of its Renewable Volume Obligations (under § 80.1407) transportation fuel from any refinery receiving the small refinery exemption under paragraph (a) of this section.

(e)(1) The exemption period in paragraph (a) of this section shall be extended by the Administrator for a period of not less than two additional years if a study by the Secretary of Energy determines that compliance with the requirements of this subpart would impose a disproportionate economic hardship on a small refinery.

(2) A refiner may petition the Administrator for an extension of its small refinery exemption, based on disproportionate economic hardship, at any time.

(i) A petition for an extension of the small refinery exemption must specify the factors that demonstrate a disproportionate economic hardship and must provide a detailed discussion regarding the hardship the refinery would face in producing transportation fuel meeting the requirements of § 80.1405 and the date the refiner anticipates that compliance with the requirements can reasonably be achieved at the small refinery.

(ii) The Administrator shall act on such a petition not later than 90 days after the date of receipt of the petition.

(f) At any time, a refiner with a small refinery exemption under paragraph (a) of this section may waive that exemption upon notification to EPA.

(1) A refiner’s notice to EPA that it intends to waive its small refinery exemption must be received by November 1 to be effective in the next compliance year.

(2) The waiver will be effective beginning on January 1 of the following calendar year, at which point the transportation fuel produced at that refinery will be subject to the renewable fuels standard of § 80.1405 and the owner or operator of the refinery shall be subject to all other requirements that apply to obligated parties under this subpart M.

(3) The waiver notice must be sent to EPA at one of the addresses listed in paragraph (h) of this section.

(g) A refiner that acquires a refinery from either an approved small refiner (as defined under § 80.1442(a)) or another refiner with an approved small refinery exemption under paragraph (a) of this section shall notify EPA in writing no later than 20 days following the acquisition.

(h) Verification letters under paragraph (b) of this section, petitions for small refinery hardship extensions under paragraph (e) of this section, and small refinery exemption waiver notices under paragraph (f) of this section shall be sent to one of the following addresses:

(1) *For US mail:* U.S. EPA, Attn: RFS Program, 6406J, 1200 Pennsylvania Avenue, NW., Washington, DC 20460.

(2) *For overnight or courier services:* U.S. EPA, Attn: RFS Program, 6406J, 1310 L Street, NW., 6th floor, Washington, DC 20005. (202) 343-9038.

**§ 80.1442 What are the provisions for small refiners under the RFS program?**

(a)(1) To qualify as a small refiner under this section, a refiner must meet all of the following criteria:

(i) The refiner produced transportation fuel at its refineries by processing crude oil through refinery processing units from January 1, 2006 through December 31, 2006.

(ii) The refiner employed an average of no more than 1,500 people, based on the average number of employees for all pay periods for calendar year 2006 for all subsidiary companies, all parent companies, all subsidiaries of the parent companies, and all joint venture partners.

(iii) The refiner had a corporate-average crude oil capacity less than or

equal to 155,000 barrels per calendar day (bpcd) for 2006.

(2) For the purposes of this section, the term "refiner" shall include foreign refiners.

(3) Refiners who qualified as small under 40 CFR 80.1142 do not need to re-apply for small refiner status under this subpart M. This paragraph (a) does not supersede § 80.1142.

(b)(1) The small refiner exemption in paragraph (c) of this section is effective immediately, except as provided in paragraph (b)(5) of this section, provided that all requirements of this section are satisfied.

(2) Refiners who qualify for the small refiner exemption under paragraph (a) of this section must submit a verification letter (and any other relevant information) to EPA by July 1, 2010. The small refiner verification letter must include all of the following information for the refiner and for all subsidiary companies, all parent companies, all subsidiaries of the parent companies, and all joint venture partners:

(i) A listing of the name and address of each company location where any employee worked for the period January 1, 2006 through December 31, 2006.

(ii) The average number of employees at each location based on the number of employees for each pay period for the period January 1, 2006 through December 31, 2006.

(iii) The type of business activities carried out at each location.

(iv) For joint ventures, the total number of employees includes the combined employee count of all corporate entities in the venture.

(v) For government-owned refiners, the total employee count includes all government employees.

(vi) The total corporate crude oil capacity of each refinery as reported to the Energy Information Administration (EIA) of the U.S. Department of Energy (DOE), for the period January 1, 2006 through December 31, 2006. The information submitted to EIA is presumed to be correct. In cases where a company disagrees with this information, the company may petition EPA with appropriate data to correct the record when the company submits its application.



(vii) The verification letter must be signed by the president, chief operating or chief executive officer of the company, or his/her designee, stating that the information is true to the best of his/her knowledge, and that the company owned the refinery as of December 31, 2006.

(viii) Name, address, phone number, facsimile number, and e-mail address of a corporate contact person.

(3) In the case of a refiner who acquires or reactivates a refinery that was shutdown or non-operational between January 1, 2005 and January 1, 2006, the information required in paragraph (b)(2) of this section must be provided for the time period since the refiner acquired or reactivated the refinery.

(4) [Reserved]

(5) For foreign refiners the small refiner exemption shall be effective upon approval, by EPA, of a small refiner application. The application must contain all of the elements required for small refiner verification letters (as specified in paragraph (b)(2) of this section), must satisfy the provisions of § 80.1465(f) through (h) and (o), must demonstrate compliance with the crude oil capacity criterion of paragraph (a)(1)(iii) of this section, and must be submitted by July 1, 2010 to one of the addresses listed in paragraph (i) of this section.

(6) Small refiner verification letters submitted under subpart K (§ 80.1142) prior to July 1, 2010 that satisfy the requirements of subpart K shall be deemed to satisfy the requirements for small refiner verification letters under this subpart M.

(c) *Small refiner temporary exemption—*

(1) Transportation fuel produced by an small refiner pursuant to paragraph (b)(1) of this section, or an approved foreign small refiner (as defined at § 80.1465(a)), is exempt from January 1, 2010 through December 31, 2010 from the renewable fuel standards of § 80.1405 and the requirements that apply to obligated parties under this subpart if the refiner or foreign refiner meets all the criteria of paragraph (a)(1) of this section.

(2) The small refiner exemption shall apply to a small refiner pursuant to paragraph (b)(1) of this section or an

approved foreign small refiner unless that refiner chooses to waive this exemption (as described in paragraph (d) of this section).

(d)(1) A refiner may, at any time, waive the small refiner exemption under paragraph (c) of this section upon notification to EPA.

(2) A refiner's notice to EPA that it intends to waive the small refiner exemption must be received by November 1 of a given year in order for the waiver to be effective for the following calendar year. The waiver will be effective beginning on January 1 of the following calendar year, at which point the refiner will be subject to the renewable fuel standards of § 80.1405 and the requirements that apply to obligated parties under this subpart.

(3) The waiver must be sent to EPA at one of the addresses listed in paragraph (i) of this section.

(e) Refiners who qualify as small refiners under this section and subsequently fail to meet all of the qualifying criteria as set out in paragraph (a) of this section are disqualified as small refiners of January 1 of the next calendar year, except as provided under paragraphs (d) and (e)(2) of this section.

(1) In the event such disqualification occurs, the refiner shall notify EPA in writing no later than 20 days following the disqualifying event.

(2) Disqualification under this paragraph (e) shall not apply in the case of a merger between two approved small refiners.

(f) If EPA finds that a refiner provided false or inaccurate information in its small refiner status verification letter under this subpart M, the refiner will be disqualified as a small refiner as of the effective date of this subpart.

(g) Any refiner that acquires a refinery from another refiner with approved small refiner status under paragraph (a) of this section shall notify EPA in writing no later than 20 days following the acquisition.

(h) *Extensions of the small refiner temporary exemption.—*(1) A small refiner may apply for an extension of the temporary exemption of paragraph (c)(1) of this section based on a showing of all the following:

(i) Circumstances exist that impose disproportionate economic hardship on

the refiner and significantly affects the refiner's ability to comply with the RFS standards.

(i) The refiner has made best efforts to comply with the requirements of this subpart.

(2) A refiner must apply, and be approved, for small refiner status under this section.

(3) A small refiner's hardship application must include all the following information:

(i) A plan demonstrating how the refiner will comply with the requirements of § 80.1405 (and all other requirements of this subpart applicable to obligated parties), as expeditiously as possible.

(ii) A detailed description of the refinery configuration and operations including, at a minimum, all the following information:

(A) The refinery's total crude capacity.

(B) Total crude capacity of any other refineries owned by the same entity.

(C) Total volume of gasoline and diesel produced at the refinery.

(D) Detailed descriptions of efforts to comply.

(E) Bond rating of the entity that owns the refinery.

(F) Estimated investment needed to comply with the requirements of this subpart M.

(4) A small refiner shall notify EPA in writing of any changes to its situation between approval of the extension application and the end of its approved extension period.

(5) EPA may impose reasonable conditions on extensions of the temporary exemption, including reducing the length of such an extension, if conditions or situations change between approval of the application and the end of the approved extension period.

(i) Small refiner status verification letters, small refiner exemption waivers, or applications for extensions of the small refiner temporary exemption under this section must be sent to one of the following addresses:

(1) *For US Mail:* U.S. EPA, Attn: RFS Program, 6406J, 1200 Pennsylvania Avenue, NW., Washington, DC 20460.

(2) *For overnight or courier services:* U.S. EPA, Attn: RFS Program, 6406J,

1310 L Street, NW., 6th floor, Washington, DC 20005. (202) 343-9038.

[75 FR 14863, Mar. 26, 2010, as amended at 75 FR 26042, May 10, 2010]

**§ 80.1443 What are the opt-in provisions for noncontiguous states and territories?**

(a) Alaska or a United States territory may petition the Administrator to opt-in to the program requirements of this subpart.

(b) The Administrator will approve the petition if it meets the provisions of paragraphs (c) and (d) of this section.

(c) The petition must be signed by the Governor of the state or his authorized representative (or the equivalent official of the territory).

(d)(1) A petition submitted under this section must be received by EPA by November 1 for the state or territory to be included in the RFS program in the next calendar year.

(2) A petition submitted under this section should be sent to either of the following addresses:

(i) *For US Mail:* U.S. EPA, Attn: RFS Program, 6406J, 1200 Pennsylvania Avenue, NW., Washington, DC 20460.

(ii) *For overnight or courier services:* U.S. EPA, Attn: RFS Program, 6406J, 1310 L Street, NW., 6th floor, Washington, DC 20005. (202) 343-9038.

(e) Upon approval of the petition by the Administrator:

(1) EPA shall calculate the standards for the following year, including the total gasoline and diesel fuel volume for the state or territory in question.

(2) Beginning on January 1 of the next calendar year, all gasoline and diesel fuel refiners and importers in the state or territory for which a petition has been approved shall be obligated parties as defined in § 80.1406.

(3) Beginning on January 1 of the next calendar year, all renewable fuel producers in the state or territory for which a petition has been approved shall, pursuant to § 80.1426(a)(2), be required to generate RINs and comply with other requirements of this subpart M that are applicable to producers of renewable fuel.

owner or a responsible corporate officer of the RIN owner.

(d) Except for those producers using feedstocks subject to the aggregate compliance approach described in §80.1454(g), producers and RIN-generating importers of renewable fuel made from feedstocks that are planted crops and crop residue from existing foreign agricultural land, planted trees or tree residue from actively managed tree plantations, slash and pre-commercial thinnings from forestlands or biomass obtained from areas at risk of wildfire must submit quarterly reports according to the schedule in paragraph (f)(2) of this section that include all of the following:

(1) A summary of the types and quantities of feedstocks used in that quarter.

(2) Electronic data identifying the land by coordinates of the points defining the boundaries from which each type of feedstock listed per paragraph (d)(1) of this section was harvested.

(3) If electronic data identifying a plot of land have been submitted previously, producers and RIN-generating importers may submit a cross-reference to that electronic data.

(e) If EPA finds that the 2007 baseline amount of agricultural land has been exceeded in any year beginning in 2010, beginning on the first day of July of the following calendar year any producers or importers of renewable fuel as defined in §80.1401 who use planted crops and/or crop residue from existing U.S. agricultural lands as feedstock must submit quarterly reports according to the schedule in paragraph (f)(2) of this section that include all of the following:

(1) A summary of the types and quantities of feedstocks used in that quarter.

(2) Electronic data identifying the land by coordinates of the points defining the boundaries from which each type of feedstock listed per paragraph (d)(1) of this section was harvested.

(3) If electronic data identifying a plot of land have been submitted previously, producers and RIN-generating importers may submit a cross-reference to that electronic data.

(f) *Quarterly report submission deadlines.* The submission deadlines for quarterly reports shall be as follows:

(1) [Reserved]

(2) Quarterly reports shall be submitted to EPA by the last day of the second month following the reporting period (i.e., the report covering January–March would be due by May 31st, the report covering April–June would be due by August 31st, the report covering July–September would be due by November 30th and the report covering October–December would be due by February 28th). Any reports generated by EMTS must be reviewed, supplemented, and/or corrected if not complete and accurate, and verified by the owner or responsible corporate officer prior to submittal.

(3) Reports required must be signed and certified as meeting all the applicable requirements of this subpart by the owner or a responsible corporate officer of the submitter.

(g) All reports required under this section shall be submitted on forms and following procedures prescribed by the Administrator.

[75 FR 14863, Mar. 26, 2010, as amended at 75 FR 26044, May 10, 2010; 75 FR 79978, Dec. 21, 2010; 77 FR 1356, Jan. 9, 2012; 77 FR 74606, Dec. 17, 2012]

#### **§80.1452 What are the requirements related to the EPA Moderated Transaction System (EMTS)?**

(a) Each party required to submit information under this section must establish an account with the EPA Moderated Transaction System (EMTS) at least 60 days prior to engaging in any RIN transactions, or July 1, 2010, whichever is later.

(b) Starting July 1, 2010, each time a domestic or foreign producer or importer of renewable fuel assigns RINs to a batch of renewable fuel pursuant to §80.1426(e), all the following information must be submitted to EPA via the submitting party's EMTS account within five (5) business days of the date of RIN assignment.

(1) The name of the renewable fuel producer or importer.

(2) The EPA company registration number of the renewable fuel producer or foreign ethanol producer, as applicable.

(3) The importer's EPA company registration number if applicable.

(4) The EPA facility registration number of the facility at which the renewable fuel producer or foreign ethanol producer produced the batch, as applicable.

(5) The EPA facility registration number of the importer that imported the batch, if applicable.

(6) The D code of RINs generated for the batch.

(7) The production process(es) used for the batch.

(8) The production date of the batch.

(9) The fuel type of the batch.

(10) The volume of the batch.

(11) The volume of denaturant and applicable equivalence value of each batch.

(12) Quantity of RINs generated for the batch.

(13) The type and quantity of feedstock(s) used for the batch.

(14) An affirmation that the feedstock(s) used for each batch meets the definition of renewable biomass as defined in § 80.1401.

(15) The type and quantity of co-products produced with the batch of renewable fuel.

(16) Any additional information the Administrator may require.

(c) Starting July 1, 2010, each time any party sells, separates, or retires RINs generated on or after July 1, 2010, all the following information must be submitted to EPA via the submitting party's EMTS account within five (5) business days of the reportable event. Starting July 1, 2010, each time any party purchases RINs generated on or after July 1, 2010, all the following information must be submitted to EPA via the submitting party's EMTS account within ten (10) business days of the reportable event. The reportable event for a RIN purchase or sale occurs on the date of transfer per § 80.1453(a)(4). The reportable event for a RIN separation or retirement occurs on the date of separation or retirement as described in § 80.1429.

(1) The submitting party's name.

(2) The submitting party's EPA company registration number.

(3) The generation year of the RINs.

(4) The RIN status (Assigned or Separated).

(5) The D code of the RINs.

(6) Transaction type (i.e., RIN buy, RIN sell, RIN separation, RIN retire).

(7) The date of transfer per § 80.1453(a)(4), if applicable.

(8) For a RIN purchase or sale, the trading partner's name.

(9) For a RIN purchase or sale, the trading partner's EPA company registration number.

(10) For an assigned RIN purchase or sale, the renewable fuel volume associated with the sale.

(11) Quantity of RINs involved in a transaction.

(12) The per gallon RIN price or the per-gallon price of renewable fuel with RINs included.

(13) The reason for retiring RINs, separating RINs, buying RINs, or selling RINs.

(14) Any additional information that the Administrator may require.

(d) All information required under this section shall be submitted on forms and following procedures prescribed by the Administrator.

[75 FR 14863, Mar. 26, 2010, as amended at 75 FR 79978, Dec. 21, 2010; 77 FR 1357, Jan. 9, 2012]

**§ 80.1453 What are the product transfer document (PTD) requirements for the RFS program?**

(a) On each occasion when any party transfers ownership of renewable fuels or separated RINs subject to this subpart, the transferor must provide to the transferee documents identifying the renewable fuel and any RINs (whether assigned or separated) which include all of the following information, as applicable:

(1) The name and address of the transferor and transferee.

(2) The transferor's and transferee's EPA company registration numbers.

(3) The volume of renewable fuel that is being transferred, if any.

(4) The date of the transfer.

(5) [Reserved]

(6) The quantity of RINs being traded.

(7) The D code of the RINs.

(8) The RIN status (Assigned or Separated).

(9) The RIN generation year.

ORAL ARGUMENT NOT YET SCHEDULED

**IN THE UNITED STATES COURT OF APPEALS  
FOR THE DISTRICT OF COLUMBIA CIRCUIT**

MONROE ENERGY, LLC, et al.,	)	
	)	
Petitioners,	)	
	)	
v.	)	No. 13-1265 (consolidated
	)	with Nos. 13-1267 and
UNITED STATES ENVIRONMENTAL	)	13-1268)
PROTECTION AGENCY,	)	
	)	
Respondent.	)	
_____	)	

**RESPONDENT EPA’S UNOPPOSED MOTION TO SEVER CERTAIN  
ISSUES AND HOLD THEM IN ABEYANCE PENDING  
ADMINISTRATIVE RECONSIDERATION**

Respondent the United States Environmental Protection Agency (“EPA”) hereby advises the Court that it recently granted reconsideration on one aspect of the rule at issue in this petition for review. The other aspects of the rule at issue are unaffected by this grant of reconsideration. Accordingly, without opposition by any party, EPA respectfully moves the Court to: (1) sever from the remainder of this litigation certain issues pertaining specifically to the portion of the rule for which EPA has granted reconsideration; (2) establish a new docket for those issues with a newly-assigned case number and hold that new case in abeyance pending the completion of reconsideration proceedings, subject to a requirement to file periodic status reports regarding the progress of the reconsideration proceedings, as

well as other reservations of the litigants' rights as described below; and (3) order the parties to file a motion or motions to govern further proceedings in the new case within 30 days after the conclusion of EPA's reconsideration proceedings. In support of this motion, EPA states as follows:

## **BACKGROUND**

### **A. Regulatory Background and Status of Reconsideration Petitions**

1. These consolidated petitions seek judicial review of EPA's final rule entitled "Regulation of Fuel and Fuel Additives: 2013 Renewable Fuel Standards," 78 Fed. Reg. 49,794 (Aug. 15, 2013) (the "2013 RFS Rule").

2. The 2013 RFS Rule sets forth, *inter alia*, EPA's projection of the volume of cellulosic biofuel—a type of renewable fuel—that would be used in commerce in the United States during calendar year 2013, pursuant to its authority under a provision of the Energy Policy Act of 2005, Pub. L. No. 109-58, 119 Stat. 495 (2005), as amended by the Energy Independence and Security Act of 2007, Pub. L. No. 110-140, 121 Stat. 1492 (2007). See 42 U.S.C. § 7545(o)(7)(D).

Among other determinations, the 2013 RFS Rule also sets forth EPA's decision whether or not to reduce the 2013 "applicable volumes" established by statute for other types of renewable fuel under 42 U.S.C. § 7545(o)(7)(D)(i), as well as EPA's determination of percentage-based standards for each type of renewable fuel (including cellulosic biofuel) for calendar year 2013, with which obligated parties

must comply. See generally Brief of Respondent EPA (“EPA Br.”) 2-12 (filed Feb. 4, 2014) (“Statutory Background” and “Regulatory Background”).

3. As part of this rulemaking, EPA also established a discrete regulatory provision that constitutes the cellulosic biofuel standard for 2013. See 40 C.F.R. § 80.1405(a)(4)(i), as set forth in 78 Fed. Reg. at 49,830.

4. Two of the Petitioners in this case, the American Petroleum Institute (“API”) and American Fuel and Petrochemical Manufacturers (“AFPM”), filed petitions for administrative reconsideration of the 2013 RFS Rule raising a number of objections to EPA’s methodology for determining the cellulosic biofuel volume for 2013 and the resulting percentage standard for cellulosic biofuel (for convenience, such objections collectively are referred to hereinafter as objections “to the 2013 cellulosic biofuel standard”). See Attachment 1 (API’s petition to EPA Administrator Gina McCarthy dated Oct. 11, 2013); Attachment 2 (AFPM’s petition dated Oct. 10, 2013). These petitions asserted, in part, that notice of this methodology had not been provided to the public; in addition, the petitions asserted that EPA had relied on data on which the public had no chance to comment, and that the cellulosic biofuel requirement for 2013 is arbitrary and capricious. See generally Attachment 1 at 3-5, Attachment 2 at 5-11. As explained further below, these are the only issues that EPA seeks to hold in abeyance.

5. Two additional grounds asserted by API and AFPM in support of Reconsideration of the 2013 RFS Rule—and also presented in API’s and AFPM’s joint merits brief in this case—are that EPA relied on an updated estimate of 2013 gasoline and diesel use provided by the Energy Information Administration on May 8, 2013, and that EPA adjusted its final standards for the 2013 RFS Rule based on a small refinery exemption. Compare Attachment 1 at 5, and Attachment 2 at 8-9, 11-12, with Brief for Petitioners API and AFPM (“API/AFPM Br.”) 11-12, 15-21 (filed Dec. 9, 2013); see also EPA Br. 14-15, 40-53. These objections do not relate *solely* to the 2013 cellulosic biofuel standard. Therefore, EPA does not ask the Court to hold these additional issues in abeyance. Likewise, EPA does not ask the Court to hold in abeyance any of the further objections to the 2013 RFS Rule raised by Petitioner Monroe Energy LLC.

6. The EPA Administrator signed letters on January 23, 2014, determining that, with respect to the objections concerning the 2013 cellulosic biofuel standard, both API’s and AFPM’s petitions meet the statutory criteria for reconsideration. Specifically, the Administrator found that an announcement by KiOR (a company that produces cellulosic biofuel) on August 8, 2013—two days after the Administrator signed the final rule—reducing KiOR’s estimate of anticipated cellulosic biofuel production in 2013 justifies reconsideration of the 2013 cellulosic biofuel standard. See Letters from EPA Administrator Gina L.



McCarthy to Robert L. Greco, III, API, and Richard Moskowitz, General Counsel, AFPM, both dated Jan. 23, 2014 (Attachments 3 and 4); see also 78 Fed. Reg. at 49,830 (final rule was signed Aug. 6, 2013).<sup>1</sup> EPA accordingly “is granting [the] petition[s] for reconsideration with regard to the 2013 cellulosic biofuel standard, and will initiate a notice and comment rulemaking to reconsider this aspect of the rule.” Attachments 3 and 4. Moreover, in addition to the specific objection that was found to justify reconsideration, “[o]ther objections to the cellulosic biofuel standard noted in [the] petition[s] may be raised in the context of this future rulemaking if [Petitioners] continue to believe them relevant.” Id.

7. It is EPA’s intention to move forward with the reconsideration proceedings by issuing a direct final rule with a parallel proposal on the 2013 cellulosic biofuel standard, and to attempt to resolve the matter expeditiously so as to avoid unnecessary cost or burden and remove regulatory uncertainty before the June 30, 2014 deadline for obligated parties to demonstrate compliance with the 2013 RFS Rule.

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<sup>1</sup> The August 8, 2013 announcement is beyond the scope of the Court’s review in this action, because EPA received this information after it had already promulgated the final 2013 RFS Rule. See 42 U.S.C. § 7607(d)(6)(C) (“The promulgated rule may not be based (in part or whole) on any information or data which has not been placed in the docket as of the date of such promulgation.”); API v. Costle, 609 F.2d 20, 24 (D.C. Cir. 1979) (“date of such promulgation” means when the rule was signed and released to the public, not the later date of publication in the Federal Register).

## **B. Status of Litigation on Cellulosic Biofuel Issues**

8. Under the current scheduling order in this case, merits briefing will be completed by February 25, 2014. Order dated Jan. 27, 2014. Oral argument has not yet been scheduled; the Court has indicated that it will calendar the argument on “the first appropriate date following the completion of briefing.” Order dated Oct. 29, 2013.

9. API and AFPM have filed a joint merits brief in which they present substantially the same arguments specifically challenging the 2013 cellulosic biofuel standard that were raised by their reconsideration petitions, as summarized in Paragraph 4 above. Compare Attachment 1 at 3-5, and Attachment 2 at 5-11, with API/AFPM Br. 12-13 and 22-34. EPA’s brief responds to each of these arguments, see EPA Br. 53-58, but initially argues that the Court should not reach these issues at this time for the reasons explained in this motion, EPA Br.15.

### **ARGUMENT**

10. The Court should sever from the remainder of this litigation the challenges to the 2013 cellulosic biofuel standard that are referred to in Paragraphs 4 and 9 above and hold them in abeyance pending administrative reconsideration, because the reconsideration proceedings may obviate the need for further litigation regarding these issues or, at minimum, may narrow the scope of any remaining dispute. Further, if Petitioners remain dissatisfied with EPA’s final action on

reconsideration, they may challenge that decision in court. Thus, Petitioners will not be prejudiced by a stay of their present challenges to the 2013 cellulosic biofuel standard.<sup>2</sup>

11. Moreover, the 2013 cellulosic biofuel standard is a discrete, severable portion of the 2013 RFS Rule, and API's and AFPM's challenges to that standard are distinct from the other issues presented in this case. Thus, severing and holding in abeyance the challenges to the 2013 cellulosic biofuel standard will not affect the Court's ability to resolve Petitioners' other challenges to the 2013 RFS Rule. For example, the rationale for EPA's decision not to reduce the 2013 volume requirement for total renewable fuels under 42 U.S.C. § 7545(o)(7)(D)(i)—which is challenged by Petitioner Monroe Energy LLC (“Monroe”) on a number of grounds—is not based on the precise cellulosic biofuel applicable volume, and therefore would not be implicated if EPA decides to further reduce the cellulosic biofuel volume after reconsideration of the 2013 cellulosic biofuel standard. See generally EPA Br. 16-30; see also Davis County Solid Waste Mgmt. v. EPA, 108 F.3d 1454, 1459-60 (D.C. Cir. 1997) (holding, in the context of a partial remand, that regulatory provisions may be treated as severable if it

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<sup>2</sup> As noted above, EPA intends to resolve the reconsideration proceedings expeditiously by way of a direct final rule, thus increasing the likelihood that the reconsideration proceedings will be resolved before the June 30, 2014 compliance date.

appears the agency would have adopted them on their own, *i.e.*, without the remanded provision). Thus, EPA's grant of reconsideration regarding the 2013 cellulosic biofuel standard provides no reason to alter the schedule on which the Court will decide Petitioners' remaining challenges to the 2013 RFS Rule. The Court approved that schedule in its Order of October 29, 2013, as modified by its Order of January 27, 2014.

12. EPA has discussed the procedural relief requested in this motion with each of the other parties in the case, including the afore-mentioned Petitioners as well Petitioner-Intervenor PBF Holding Company LLC and Respondent-Intervenors Biotechnology Industry Organization, Growth Energy, Renewable Fuels Association, and National Biodiesel Board. Several parties have expressed concern about the time remaining before June 30, 2014, the deadline for obligated parties to demonstrate compliance with the 2013 RFS Rule. See 78 Fed. Reg. at 49,800. In order to accommodate these parties' concerns, EPA proposes to file status reports in the severed case regarding the progress of the reconsideration proceedings, with the first such report due Friday, March 21, 2014 (*i.e.*, 45 days from the date of today's motion), and subsequent reports due at 60-day intervals thereafter until EPA takes a final action on reconsideration of the 2013 cellulosic biofuel standard. The parties would then be required to file a motion or motions to govern further proceedings in the severed case within 30 days after the date of

signature of EPA's final action on reconsideration of the 2013 cellulosic biofuel standard. All parties expressly reserve their right to move for a judicial stay of the above-referenced June 30, 2014 compliance deadline pursuant to 42 U.S.C.

§ 7607(d)(7)(B), 5 U.S.C. § 705, and/or such other authority as the Court may have in the event they conclude, based on the content of EPA's status report/s, that such relief is appropriate. EPA reserves all of its rights to respond to any such motion.

13. All other parties in the case have confirmed through counsel, without conceding any legal assertions or characterizations of issues EPA has set forth in this motion, that they do not oppose the relief requested by this motion.

### **CONCLUSION**

14. For the foregoing reasons, rather than render what may prove to be an advisory opinion on the merits of the challenges to the 2013 cellulosic biofuel standard, the Court should grant this motion and issue an order:

(a) Severing from the remainder of this litigation the challenges to the 2013 cellulosic biofuel standard, 40 C.F.R. § 80.1405(a)(4)(i), as set forth in 78 Fed. Reg. at 49,830. Specifically, the Court should sever the issues addressed in API and AFPM's brief at pages 12 to 13 and 22 to 34, and in EPA's brief at pages 53 to 58;

(b) Establishing a new docket and a new case number for this severed case, and holding it in abeyance under the terms described in Paragraph 12 above; and

(c) Requiring the parties to file a motion or motions to govern further proceedings within 30 days after the date of signature of EPA's final action on reconsideration of the 2013 cellulosic biofuel standard.

Respectfully submitted,

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Dated: February 4, 2014

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## **CERTIFICATE OF SERVICE**

I hereby certify that the foregoing Respondent EPA's Unopposed Motion to Sever Certain Issues and Hold Them In Abeyance Pending Reconsideration has been filed with the Clerk of the Court this 4th day of February 2014, using the CM/ECF System. True and correct copies were sent to each of the following counsel by electronic service through the appellate CM/ECF system:

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## Ethanol RIN Waiver Credits:

### *Improving Outcomes of the Renewable Fuels Standard through a Price Containment Mechanism*

**Prepared by:**

Charles River Associates

Date: March 2018

## Table of contents

1. Executive Summary.....	1
2. Introduction.....	3
3. Issues with the Current RFS Design.....	4
3.1. Illustration of current RIN economics.....	5
3.2. Issues with breaching the blend wall.....	7
3.3. Failure of high RIN prices to expand higher blend fuels.....	9
4. Using a Price Containment Mechanism to Address RFS Issues.....	12
4.1. How price containment mechanisms work.....	12
4.2. Infrastructure investment benefit.....	14
5. Designing a Mechanism for the RFS.....	15
5.1. Economic considerations.....	16
5.2. Lessons from price containment in other markets.....	16
5.3. Waiver credit program design features.....	18
Appendix A: Case Study: Renewable Portfolio Standards.....	20
Appendix B: Case Study: Various Carbon Policies.....	23
Appendix C: Case Study: California's Low Carbon Fuel Standard.....	26

## Disclaimer

The study was commissioned by Valero. The research, analysis, results and conclusions were all developed independently by the authors. The conclusions set forth herein are based on independent research and publicly available material.

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## 1. Executive Summary

Market-based policies that aim to increase a societal good, such as renewable energy, often employ quantity targets with associated credit markets that allow policy goals to be met at least cost. These credit markets, such as the RIN market under the Renewable Fuels Standard (RFS), can be subject to uncertain and volatile prices when the real world turns out different than policymakers expected. Unexpectedly high prices can lead to significant societal costs and ultimately a failure to meet policy goals.

Since 2013, the ethanol RIN market has experienced high and volatile prices, even though the average ethanol content of motor gasoline in the US has been higher than policymakers thought was necessary to meet their ethanol volume goals when the policy was devised. Actual US transportation fuel consumption has been substantially lower than forecasted when the RFS was written in 2007. This meant that even with the entire country consuming gasoline with approximately 10 percent ethanol, the RFS ethanol volume standards have not been met. Higher ethanol content fuels, such as E15 and E85, could help meet the target, but increasing use of these higher ethanol blends has been held back by infrastructure constraints.

Instead, the RIN deficiency has been met by expanding biodiesel consumption, based on an unintended result of the fuel-type nesting structure of the RFS. Ethanol (D6) RINs have therefore priced off the higher cost biodiesel (D4) RINs. Meanwhile, the US has increased its imports of biodiesel, often from sources with potentially negative environmental impacts. There has also been minimal appreciable increase in ethanol use past the “blend wall,” despite RIN prices being many times greater than their levels prior to 2013.

The RFS policy goals could be met at a more reasonable RIN cost with the implementation of a well-designed price containment mechanism. National biofuel policy discussions have recently turned to such mechanisms. These concepts have proven effective in a variety of other compliance credit markets, such as the Renewable Portfolio Standards and carbon emissions policies in many states and regions. While they may have different names, such as price caps, alternative compliance payments (ACP), or safety valves, they have proven effective policy tools. Their application to the RFS is further supported in academic literature.

Many applications of price containment mechanisms include significant government revenue streams, which in many cases have been effectively targeted at breaking through policy and infrastructure constraints. A price containment mechanism in the RFS could lead to greater ethanol consumption in the long term if it includes redirecting the new government revenue stream to expanding higher ethanol blend fuel consumption.

An ideal mechanism for the RFS will minimize consumer costs while achieving long-term policy goals, such as the use of renewable fuels. Waiver credits could be offered for sale by the EPA as an alternative compliance mechanism for obligated parties. A waiver credit program could consider the following components:

**A price that reflects ethanol RIN costs** – To minimize compliance costs, the waiver credit price should be as low as possible, without causing displacement of ethanol volumes in normal compliance years. Historical ethanol RIN prices prior to the blend wall, in market conditions similar to current conditions, averaged only a few cents. This was due to oxygenate and octane demand for ethanol driving blending. These other demand drivers still exist, and therefore a waiver credit price of about \$0.10 per RIN should effectively relieve the blend wall without displacing ethanol volumes.

**A quantity that ensures blend wall relief** – If there are not enough waiver credits to clear the blend wall, the program will not provide much value. Given the uncertainty

around the volume of credits needed, the program should provide a substantial numbers of credits. If priced above the natural ethanol RIN price, then there would only be demand for waiver credits to displace RIN volumes above the blend wall.

**A revenue recycling program aimed at lowering long-term compliance costs –**

The EPA can expect tens of millions of dollars per year in waiver credit revenues. These could be re-invested in the renewable fuels industry, with the aim of reducing long term compliance costs. A strong candidate for investment is infrastructure for E15 and E85 fuels, which have faced constraints in availability to consumers. With adequate investment in E15 and E85 infrastructure, long term waiver credit demand could decrease, effectively sunseting the program naturally.

A price containment mechanism for the RFS can benefit from lessons learned from other policies and markets. There are currently a variety of price containment mechanisms within markets that were formed by environmental and energy policies. While a revisiting of the fundamental RFS policy drivers is a reasonable long-term idea, adding a well-designed ethanol waiver credit program could alleviate several of the most pressing issues with the RFS.

## 2. Introduction

This paper considers the application of a price containment mechanism in the RFS. It covers the following topics, each addressed in separate sections:

- **Issues with the Current RFS Policy Design** – The RFS was designed with ethanol volume goals based on an expectation of ever-increasing motor gasoline consumption. That has not occurred. As a result, the ethanol blend wall has been dictating RIN economics.

Ethanol RIN prices have been set by the cost to expand biodiesel consumption beyond its RFS-mandated levels. These higher costs have done little to expand ethanol consumption. Nearly the same ethanol volume outcome could have been achieved for a much lower RIN cost. The widespread sale of higher blend ethanol fuels has not increased fast enough despite the high RIN prices.

- **Using a Price Containment Mechanism in the RFS** – The concept of price controls or “safety valves” have existed for as long as there have been compliance markets. They first gained favor in environmental policy-derived markets in the 1980s. The main reasons cited for applying price containment include responding to uncertainty, reducing regulatory burden, decreasing price volatility, and creating a source of revenue that can be used to address policy constraints, thereby improving long-term cost and policy outcomes. All of these are reasons present in the RIN market. We provide an illustration and description of how a price control mechanism would alleviate several RFS issues.
- **A Waiver Credit Solution for the RFS** – An ideal mechanism for the RFS will minimize consumer costs while achieving long-term policy goals, such as the use of renewable fuels. Waiver credits could be offered for sale by the EPA as an alternative compliance mechanism for obligated parties. The waiver credit price should be kept low to minimize compliance costs, but should not lead to significant displacement of ethanol blending. Historical RIN prices suggest that such a price could be as low as a few cents. There should be substantial waiver credits available to ensure that the blend wall is not breached. To improve long-term outcomes, revenues from waiver credits can be invested in relieving infrastructure constraints to higher ethanol blend fuels.
- **Appendices: Case Studies** – A price containment mechanism for the RFS can benefit from lessons learned from other policies and markets. There are currently a variety of price containment mechanisms within markets that were formed by environmental and energy policies. Examples include: many state-level renewable energy programs, the California Low Carbon Fuel Standard, and multiple regional carbon markets, such as that in the Northeast U.S. We examine a few in detail.

While some may point to EPA’s waiver authority as an indirect price containment mechanism, it is not used as such and it is limited in its effectiveness. It has not prevented the market distortion caused by ethanol RIN pricing being stuck at biodiesel RIN levels for multiple years. Nor has it created any investment revenues that could be used for improving long-term policy outcomes and blending substantially more ethanol. While it is possible that the waiver authority could be tied to a price containment mechanism, in its current form it does not contain RIN prices.

A well-designed price containment mechanism in the RFS can improve the RIN market. It can deter unnecessary policy costs and can improve long-term outcomes, particularly if waiver credit revenues are used to break through constraints. Ethanol producers can benefit from long-term volume expansion as infrastructure constraints on higher blend fuels are reduced. Obligated parties can benefit from lower compliance costs in years where the price cap is binding. They would also experience reduced price volatility and a reduced risk of losing RIN

value to blenders. Finally, and most importantly, consumer costs would decrease as the long-term policy costs decrease.

### 3. Issues with the Current RFS Design

The RIN mechanism is a quantity-based compliance program, which uses a market mechanism (the RIN market mechanism) to require a certain quantity of ethanol to be used in each period. In simplified terms, the EPA sets the quantity of ethanol to be blended and the tradable RIN mechanism is designed to allow this to happen at least cost.

In the absence of perfect information in setting quantities in advance in such mechanisms, there is a substantial economic literature on the use of quantity versus price-based regulatory mechanisms.<sup>1</sup> If the marginal benefits of compliance greatly exceed the marginal costs, a quantity-based mechanism may be preferable.<sup>2</sup> Nevertheless, the RFS as implemented is a purely quantity-based system with a fixed target, with the inherent scope for unexpected price and policy outcomes if the future turns out differently than expected when the quantities were set.

As we show later in this paper, this is what has happened in the context of the RFS. Originally it was widely thought that, with ever increasing gasoline consumption, it would be relatively easy (and hence require a minimal subsidy, and thus reflecting a low RIN price) to meet the ethanol mandates. However, gasoline consumption has not grown as forecast (a good thing, from an environmental perspective), and infrastructure and other constraints have made it quite difficult to blend higher levels of ethanol to meet RFS requirements. In short, the current RIN market is the result of unintended consequences that a pure quantity-based mechanism lacks the flexibility to address.

This too is a known problem in the economic literature, and various changes to pure quantity-based mechanisms have been proposed in the economic literature (and often implemented in practice) to address the fundamental inflexibility of a pure quantity compliance target.<sup>3</sup> Later in this paper we discuss several case studies of price containment features which have been incorporated into other quantity-based compliance mechanisms to illustrate some practical implementations of these fundamental economic ideas.

We begin with an illustration of current ethanol RIN economics, showing how ethanol (D6) RIN prices have been pricing off of biodiesel (BBD, or D4) RINs. This unexpected outcome was created by the breaching of the ethanol blend wall, which we discuss after the RIN economics illustration. We then show how, despite high RIN prices, higher ethanol blend fuels have not entered the market to relieve the blend wall constraint.

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1 Weitzman (1974). Prices versus Quantities. *Review of Economic Studies*, 41(4).

2 Newell, R., W. Pizer and J. Zhang (2003). *Managing Permit Prices to Stabilize Prices*. RFF Discussion Paper RFF DP-0-34

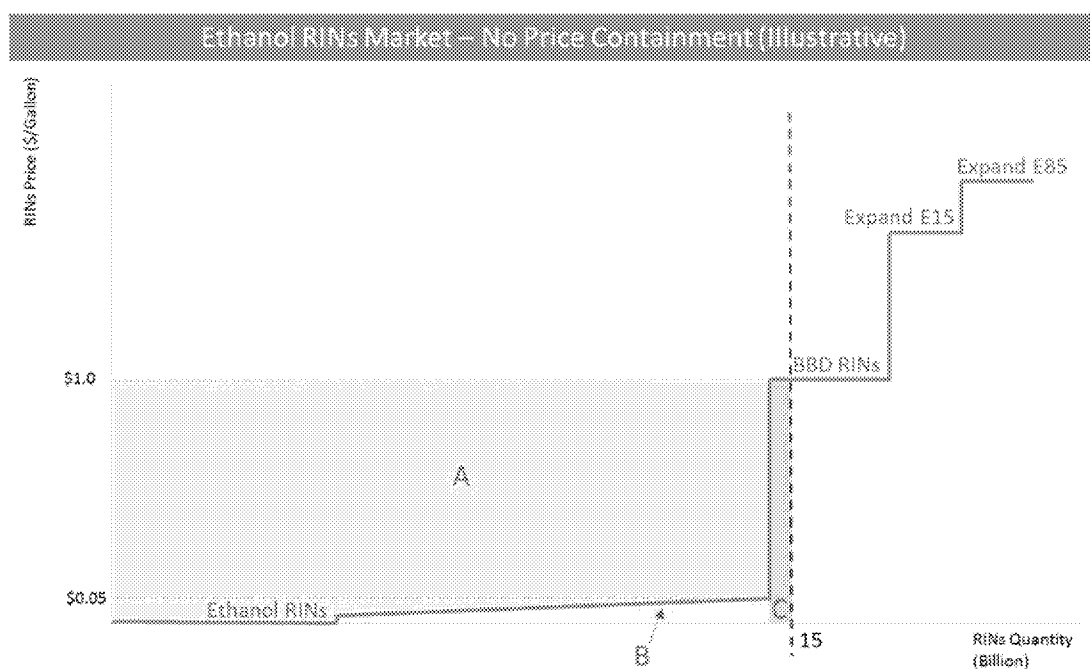
3 See for example, Jacoby, H. and D. Ellerman (2004). The Safety Valve and Climate Policy. *Energy Policy*, 32(4) and Kollenberg, S. and L. Taschimi (2016). Emissions Trading Systems with Cap Adjustments. *Journal of Environmental Economics and Management*, 80.

### 3.1. Illustration of current RIN economics

The main driver of RIN prices – at least in theory- is the price spread between the conventional fuel and the renewable fuel, adjusted for the lower energy content of the renewable fuel. While there are several constraints on this pricing dynamic being fully realized, historical movements in the conventional-to-renewable fuel spreads have been roughly correlated with RIN price changes.

The following chart is an illustration of the supply and demand curves in the RIN market as it is currently constructed. The prices and quantities roughly match actual outcomes in the past few years, including a RIN price set by BBD RINs. The chart is only meant to illustrate the market, not precisely replicate it.

**Figure 1: D6 RIN market illustration, without price containment mechanism**



The following describes each of the main elements of the above chart:

- **Supply curve** – While the illustrative supply curve in a generic market is often represented by a sloping line, the ethanol RINs supply curve is better characterized by a tiered set of steps. These represent the increasing compliance costs of supplying additional RINs, which see the greatest jumps in cost when moving to different fuels for compliance. For example, a significant amount of ethanol would be blended for its oxygenate and octane enhancement characteristics, regardless of the RFS. The associated RINS could be produced even at a zero RIN price, as there is another (non-RFS related) value to using ethanol. These low-cost or no-cost RINs represent the first tier in the supply curve.

The next tier is the ethanol that requires a RIN price to be blended, which we assume is upward sloping due to different blending economics in different regions of the country and different costs for different producers. Both of the ethanol tiers are primarily driven by the price spread between petroleum feedstock and ethanol and the relative price of ethanol versus other octane enhancement options. In this example, all E10 ethanol RINs are available at under \$0.05 per RIN, informed by

actual RIN market outcomes when ethanol blending set the RIN price prior to 2013. The ethanol tier ends at the “blend wall,” which is the number of RINs that can be achieved by maximizing the amount of ethanol in motor fuels across the country, up to the E10 recommended standard.

RIN market outcomes have demonstrated that the next tier comes from biodiesel-based RINs, which are RINs generated by biodiesel use beyond the D4 volume standard set by the EPA.<sup>4</sup> The nested fuel structure of the RFS allows D4 RINs to count toward fulfilling D6 obligations. The price of these RINs is determined by comparative economics for biodiesel and diesel, with the RIN price theoretically covering the spread adjusted for energy content.

The last two tiers illustrated are for expanding higher ethanol blend fuels. These RIN prices represent the price needed to incentivize the infrastructure investments to expand distribution of the higher blend fuels. The price has not been realized by the market due to the BBD RINs setting a temporary ceiling on D6 RIN prices, so they remain unknown. It is possible that the price level required to incentivize infrastructure investment is extremely high, and therefore could bring high consumer costs if it were ever realized in the RIN market.

- Demand curve – The demand curve is illustrated as a vertical line at the mandated D6 RIN volume. This is a volume that must be met, nearly regardless of RIN price.<sup>5</sup>
- RIN price – The RIN price will be set at the intersection of the supply and demand curves. In the chart, the intersection is on the BBD RIN portion of the supply curve, making the BBD RINs the “marginal RINs” that set the price for all D6 RINs transacted.<sup>6</sup>
- Total market RIN value – In this illustration, the total value of all RINs is \$15 billion. This is represented by the areas A, B, and C combined. Had the price been \$0.05 per RIN and the quantity remained the same, the total value of all RINs would be \$750 million, a difference of \$14.25 billion.
- Producer surplus – Producer surplus is the amount that producers of RINs are paid over the amounts for which they would be willing to sell them. In the short term, they would be willing to sell RINs at their cost of producing them. In the long term, they would also include a rate of return. This surplus is achieved due to the concept of a marginal producer setting a single price in a market. In the illustration, it is represented by the area A.<sup>7</sup>

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<sup>4</sup> Other small tiers exist, such as a tier for banked RINs and tiers for E15 and E85 sold via the existing infrastructure. The banked RIN tier is only an annual phenomenon, and thus they have been excluded in this example. The existing E15 and E85 tiers are assumed to be in the sloping portion of the ethanol RIN tier.

<sup>5</sup> At extremely high RIN prices there would be a decrease in demand for motor gasoline and therefore a lower RIN demand, but that extreme effect is not necessary to include in this illustrative example.

<sup>6</sup> RINs transacted over a year will change in price based on expectations about the marginal RIN cost (either in the current year, or the next year due to banking). Prices may also vary for participants due to contracts and level of vertical integration. However, in the long term, the marginal supply tier sets the price for all RIN transactions.

<sup>7</sup> These surpluses are not entirely held by the producers of RINs (the blenders that separate them). A significant portion is returned through the concept of pass-through in petroleum feedstock prices. Our previous research has shown this pass-through is incomplete, suggesting that some surplus remains with the blenders.



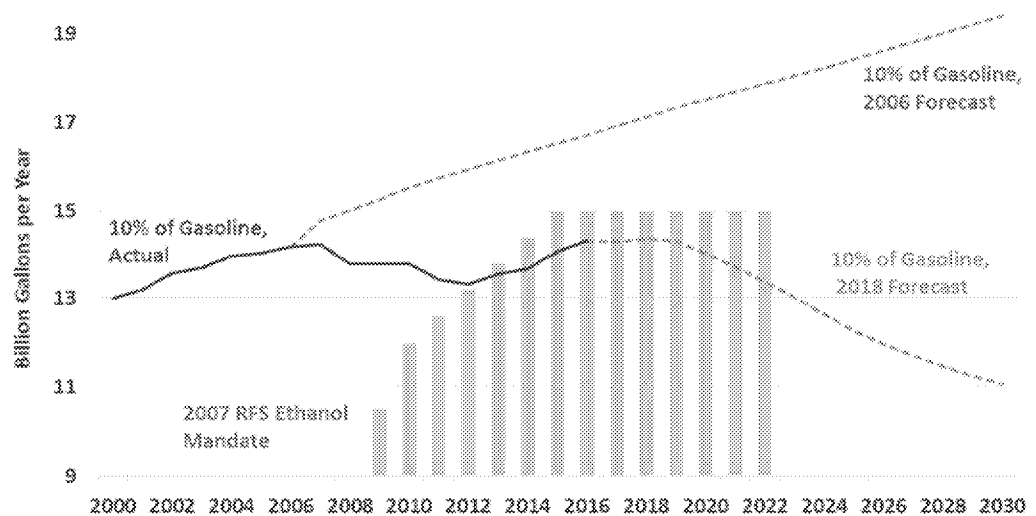
### 3.2. Issues with breaching the blend wall

The blend wall is breached when the RFS ethanol volume standard is higher than the quantity of ethanol that can be blended as E10, adjusted for higher and lower blend volumes. When the blend wall is exceeded, there is a deficiency of RINs for compliance. There are two main reasons that the blend wall was more easily reached than expected.

1. **Lower U.S. motor gasoline consumption than expected** – This led to a lower amount of ethanol consumed in E10 than expected. The following chart illustrates the discrepancy in forecasted vs. actual E10 ethanol volumes. The light blue line shows the amount of ethanol that would have been blended in E10 if gasoline consumption grew as expected as of 2007. This is well above the green bars, which represent the ethanol quantity mandates from the 2007 RFS2 regulations.

The dark blue line represents actual ethanol volumes in E10, based on lower motor gasoline consumption. The orange line shows the amount of ethanol in E10 based on recent forecasts of gasoline consumption. Both of these lines are well below the mandated ethanol volumes, thus leaving a gap that must be filled by higher blend fuels or D4 RINs.

Figure 2: Ethanol potential of E10, forecasted vs. actual vs. mandate (billion gallons)



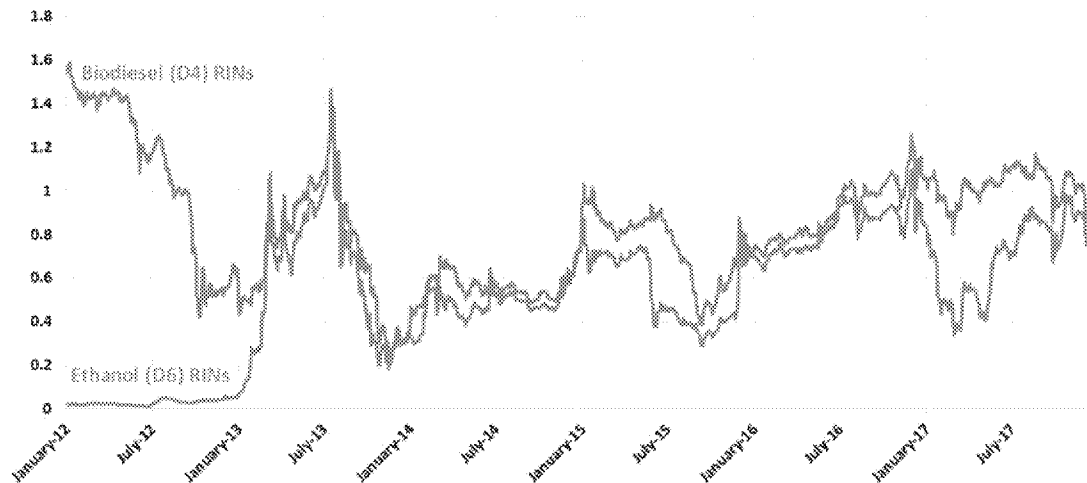
Sources: EIA AEO 2006, EIA AEO 2018, EPA RFS overview

2. **Lower penetration of higher ethanol blend fuels than expected** - This effectively capped ethanol volumes near 10% of motor gasoline consumption. This is discussed in detail in the next section (Section 3.3).

In the RIN market economics illustration in the previous section, the volume standard of 15 billion ethanol RINs caused a breach of the blend wall. This caused the RIN price to jump from about \$0.05 to \$1.00 per RIN. While these are illustrative prices, they reflect recent RIN price history. Before the blend wall was breached, RIN prices were far below current levels. In 2012, they averaged under \$0.03 per RIN. After the breach in 2013, they priced off of D4 prices, reaching as high as \$1.45 per RIN. While there was some price separation in early

2017, D4 and D6 RIN prices have since converged again. This is shown in the following chart.

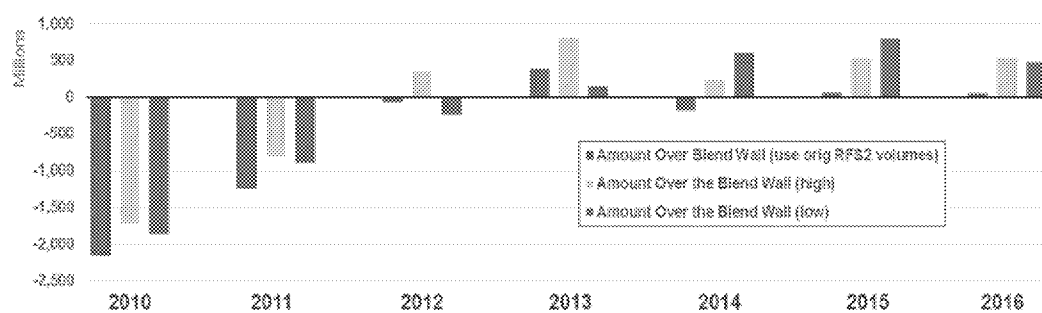
**Figure 3: Historical RIN prices (\$)**



Source: RIN data from Oil Price Information Service (OPIS)

The D6 price jump occurred in the same year that the blend wall was breached for the first time. The following chart estimates the quantity, in millions of gallons, by which the blend wall was breached in each year from 2010 to 2016. The amount and timing of the breach is dependent on assumptions about volumes of E0, E15 and E85 consumed. The three bars for each year represent the blend wall breach calculated by various assumptions of higher blend volumes. The green bars represent the breach that would have occurred if the original RFS2 ethanol volume goals were not adjusted. The gray and yellow bars represent breach amounts with high or low assumptions, respectively, about E15 and E85 volumes. Regardless of which is most accurate, it is generally accepted that the blend wall was breached around 2013.

**Figure 4: Blend wall “breach” by year**



Sources: EPA data, CRA analysis

The blend wall breach occurred without a direct policy response to mitigate its impacts. As a result, there were several issues that arose that threatened the efficient achievement of RFS policy goals. The first set of issues centered on the unintended spike in biodiesel consumption. Because of the ethanol RIN demand for BBD RINs, volumes of biodiesel have significantly exceeded the RFS biodiesel volume standard. In the first year of blend wall

breaching, U.S. biodiesel consumption jumped from 21 million barrels (2012) to 34 million barrels (2013).<sup>8</sup>

This had two main consequences. First, D4 prices, which had been on a significant downward trend, jumped nearly 300% in one year. This had impacts on policy costs. Second, there was a significant increase in imported biodiesel and decrease in exports. In the year before the blend wall, the U.S. was a net exporter of biodiesel (2.2 million barrels in 2012). In the first year of the blend wall breach, the U.S. became a net importer (3.5 million barrels in 2013).<sup>9</sup> It also led to increased demand for biodiesel from foreign sources with potentially negative environmental impacts.<sup>10</sup> Given the environmental driver behind the RFS, this was not necessarily in line with policy goals.

The higher prices themselves are an issue. They add uncertainty and volatility as small changes in fuel market factors can have a large impact on RIN prices. The fact that prices can jump between biodiesel and ethanol pricing also impacts uncertainty. This was seen in the past 1.5 years as market participants tried to gauge whether the EPA would maintain volumes that breached the blend wall. The higher prices also increase the potential financial incentives for blenders to retain portions of the RIN value, rather than passing it all through to refiners as the policy intended.

### 3.3. Failure of high RIN prices to expand higher blend fuels

The blend wall has not been relieved by an expansion of higher blend fuels. There is market evidence that the main cause of the failure to expand E15 and E85 has been insufficient infrastructure investment. If infrastructure were expanded, it is likely that there would be significantly more ethanol blended in transportation fuels at a RIN price well below the RIN prices seen since 2013. These concepts are further explained in this section.

#### 3.3.1. Insufficient penetration of high blend fuels

To drive an increase in higher blend fuels, the fuels must be cost competitive with E10 on an energy content basis,<sup>11</sup> readily available for purchase by final consumers, and have a market of vehicles that can use higher blend fuels. While the pricing issue has seen several challenges with the efficient pass-through of RIN value, the main constraint to all of the above conditions is the lack of adequate infrastructure, and in particular fueling stations that offer E15 and E85. As such, if a primary policy goal is to expand ethanol consumption in transportation fuels beyond the E10 blend wall, any policy options can be substantially judged by whether they effectively confront the E15 and E85 infrastructure challenges.

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<sup>8</sup> U.S. Energy Information Administration. (2018). *Monthly Energy Review February 2018: Biodiesel and Other Renewable Fuels Overview*. Retrieved from [https://www.eia.gov/totalenergy/data/monthly/pdf/sec10\\_8.pdf](https://www.eia.gov/totalenergy/data/monthly/pdf/sec10_8.pdf)

<sup>9</sup> Idem

<sup>10</sup> AETS. (2013, February). Assessing the impact of biofuels production on developing countries from the point of view of Policy Coherence for Development. *The European Union's Framework Contract Commission 2011*. European Union. Retrieved from: [https://ec.europa.eu/europeaid/sites/devco/files/study-impact-assesment-biofuels-production-on-development-pcd-201302\\_en\\_2.pdf](https://ec.europa.eu/europeaid/sites/devco/files/study-impact-assesment-biofuels-production-on-development-pcd-201302_en_2.pdf)

<sup>11</sup> E15 has roughly 98% of the energy content of E10, while E85 has roughly 77% of the energy content of E10.

To date, the RFS has not met the challenge of expanding higher blend fuels. There are currently about 1,000 stations selling E15 and about 3,160 stations offering E85.<sup>12</sup> These stations represent 0.8% and 2.6%, respectively, of all public gas stations in the U.S.<sup>13</sup> While E15 and E85 sales volumes are not explicitly tracked, the EPA provided estimates of their volumes in their analysis supporting the 2017 RFS volume standards. They estimated annual sales of 728 million gallons of E15 and 275 million gallons of E85, which represent only 0.5% and 0.2% of all U.S. motor gasoline demand. In order to cover the deficiency of ethanol below the 15 billion gallon RFS goal, there would need to be tens of thousands more stations with either E15, E85 or both.<sup>14</sup>

### 3.3.2. Lack of infrastructure expansion

Higher RIN prices have clearly not been enough incentive for the significant infrastructure needed to manage the blend wall. As shown in the figure below, E85 stations were added at a much greater rate prior to the 2013 spike in RIN prices (in blue) versus after the spike (in green). The annual growth rate from 2005 through 2013 was over 22%, while the rate for 2013 through 2016 was only 4%. This plateau occurred despite much higher RIN prices.

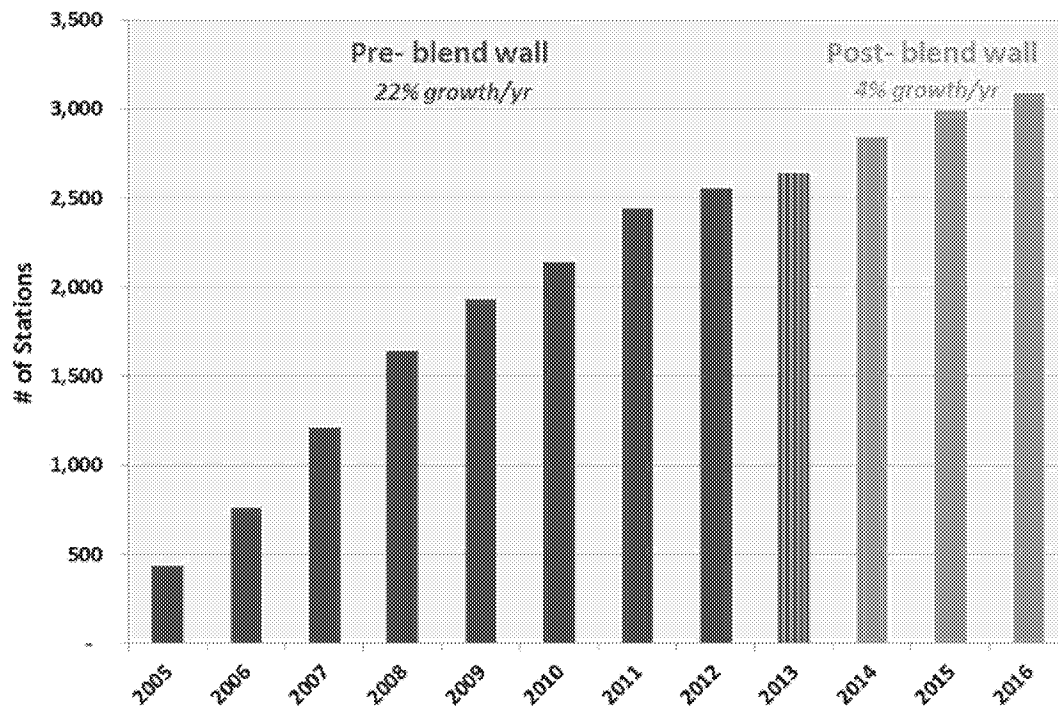
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<sup>12</sup> E15 estimate from Growth Energy's website, as of October 2017. E85 estimate from U.S. DOE's Alternative Fuels Data Center, accessed 2/23/2018. Note that these are not necessarily unique stations, as many E85 stations offer E15 through blending at the station.

<sup>13</sup> Total fueling stations from NACS Fuels Report 2016

<sup>14</sup> The number of stations could be reduced if each station sold a higher amount of higher blend fuels than the current average.

Figure 5: E85 filling stations, 2005 - 2016



Source: U.S. DOE Alternative Fuels Data Center

### 3.3.3. The RIN price has been sufficient to blend ethanol

This stall out in infrastructure expansion occurred during a period in which RIN prices were significantly higher than what would theoretically be needed to incentivize the use of higher blend fuels. The needed RIN price is based on ethanol and petroleum feedstock pricing spreads, with adjustments for the energy content penalty for blending ethanol and the blending benefits of oxygenate and octane enhancement.

To understand the RIN price needed to blend ethanol, consider a simple example based on approximate versions of 2013 feedstock prices (\$2.50 per gallon RBOB and \$2.00 per gallon ethanol) and an assumption of perfectly rational and informed gasoline consumers. Without considering the oxygenate and octane benefits, the maximum RIN price needed for blending ethanol would be about \$0.30 per RIN to make up for the energy content difference.<sup>15</sup> However, that is much higher than the needed RIN price since ethanol blending has oxygenate and octane benefits. As seen in 2012, those additional benefits can drive the RIN price near \$0 during a period with similar feedstock price spreads.

15

This hypothetical RIN value was calculated based on reaching energy content price parity at the wholesale level. It does not account for the added costs associated with the higher blend fuel supply chains and distortions in retail pricing.

### 3.3.4. Relief of the infrastructure constraint would drive more ethanol use

The fact that in 2013 prices jumped to well over \$1.00 per RIN for a substantial period is a clear indicator that there were infrastructure constraints to expanded ethanol blending. In fact, since the blend wall was breached, RIN prices have remained well over the theoretical amounts needed to incentivize blending E15 and E85 (up to any infrastructure constraints). Relieving these constraints could moderate RIN prices.

This is the conclusion reached in 2014 by Babcock and Pouliot.<sup>16</sup> They performed quantitative analysis to estimate how the consumption of E85 can be increased through the construction of new fueling stations and by changing retail and RIN prices, while maintaining the number of flex-fuel vehicles constant at 2013 levels. In their study, E85 volumes could be expanded to produce 800 million additional ethanol gallons at a price of \$0.18/RIN, under the assumption that hundreds of additional fueling stations were added.

A 2015 study by Christensen and Siddiqui has also shown that there is a strong correlation between E85 consumption targets and cost of compliance. They demonstrated that if new initiatives were undertaken to install blender pumps and help deploy an additional 600 million gallons of E85 in 2017, the cost of compliance could be reduced by approximately 50%.<sup>17</sup> According to this study, this would take the form of dampened D5 and D6 RIN prices; D4 RIN prices would largely be unaffected.

It is clear from simple calculations and the academic literature that relieving the infrastructure constraint would lead to a commensurate volume of higher blend fuels added to the market, even at RIN prices less than half their recent levels.

## 4. Using a Price Containment Mechanism to Address RFS Issues

There are several regulatory options for addressing the issues discussed in the previous section. One option would be to dynamically link the volume standards to market conditions, such as the actual amount of motor gasoline consumed and higher blend fuels in the market. This would only be effective if it kept mandates below the blend wall. Another option would be an expansion of qualifying ethanol RINs, such as allowing unobligated RINs for exports. This white paper focuses on a price containment mechanism.

### 4.1. How price containment mechanisms work

Well-designed price containment mechanisms can effectively limit the societal costs of environmental and energy policies, while also supporting the attainment of policy goals. The mechanisms are most beneficial in policies based on quantity goals, which have uncertain cost outcomes that need moderation. The mechanisms are also most beneficial in markets where high prices lead to negative impacts on most stakeholders and the prices do not efficiently drive desired policy outcomes. In these markets, higher prices may simply provide surplus income to producers and costs to consumers, while doing nothing for long-term policy

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<sup>16</sup> Babcock, B., & Pouliot, S. (2014). *Feasibility and Cost of Increasing US Ethanol Consumption Beyond E10*. Ames: Center for Agricultural and Rural Development, Iowa State University.

<sup>17</sup> Christensen, A., & Siddiqui, S. (2015). Fuel Price Impacts and Compliance Costs Associated With The Renewable Fuel Standard (RFS). *Energy Policy*, 614-624.

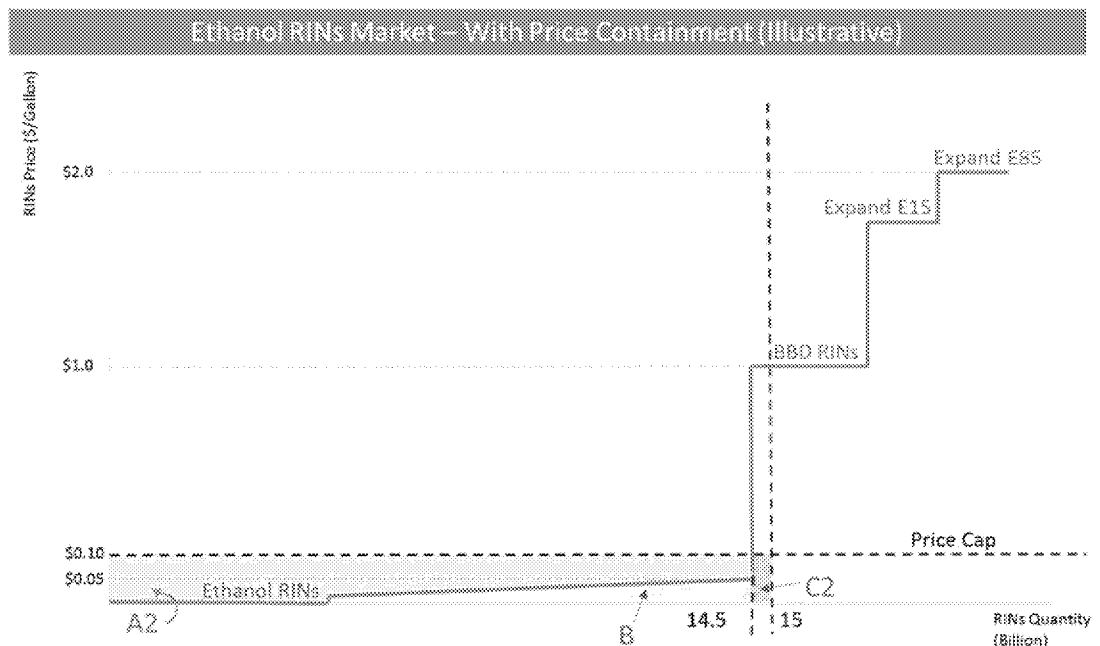
goals. Price containment mechanisms can prevent such unnecessary transfers, while lowering long-term policy costs.

The basic theory of price containment mechanisms is quite simple. An administrative mechanism is put in place that prevents the price of a compliance credit from exceeding a set level. The mechanism usually involves the administrator, often a government entity, selling compliance credits at a specified price to prevent prices from going higher in the market. This price cap can help contain the overall cost of compliance with a mandate.

Price caps are popular among policymakers for many reasons. They can make new regulations more palatable for many stakeholders by reducing the risk of high costs of compliance, which can both impact obligated parties as well as consumers downstream from the compliance market. In the long-term, this benefit can allow the policymakers to be more ambitious with targets. Philibert argues that a safety valve (another term for a price cap) allows for a more ambitious target in the face of uncertainty about costs because it prevents costs in excess of acceptable levels.<sup>18</sup> This can also extend the life of a policy, since a clear threat to policy longevity would be stakeholder backlash from extreme compliance costs.

Figure 6 shows how a simple price containment mechanism would work in the RFS. It begins with the same RIN supply curve and quantity mandate as in Figure 1, with a price cap added at \$0.10 per compliance credit.

**Figure 6: D6 RIN market illustration, including price containment <sup>19</sup>**



The following describes each of the main elements of the above chart:

- Supply curve – The supply curve is the same as the example without a price cap.

<sup>18</sup> Philibert, C. (2006). *Certainty versus Ambition: Economic Efficiency in Mitigating Climate Change*. Paris: International Energy Agency Working Paper Series. Report Number LTO/2006/03.

<sup>19</sup> As mentioned in the text, this chart is illustrative and not a policy recommendation for a particular price cap level.

- Demand curve – The demand curve is the same as the example without a price cap, a vertical line at 15 billion RINs.
- Price cap – This purely illustrative example includes a price cap of \$0.10 per compliance credit.
- RIN price – In this example, the price cap is reached before the volume standard is reached, and therefore the RIN price is set by the cap at \$0.10 per RIN. If the volume standard were less than 14.5 billion gallons, the RIN price would have been set off the ethanol RIN supply curve and the price cap would not be used.
- Total market RIN value – The price of RINs fell from \$1.00 per RIN to \$0.10 per RIN. This \$0.90 per RIN reduction results in a \$13.5 billion reduction in the total value of all D6 RINs, including those purchased at the cap. In a market where most RINs are transacted, this is a major reduction in the total value of market transactions.
- Government revenue – Assuming the price cap is administered by the sale of compliance credits, the chart shows 500 million credits sold at the price cap level of \$0.10 per credit. This results in \$50 million of proceeds from the sale, represented by area C2 in the chart. If the volume standard was set below 14.5 billion RINs, there would be no proceeds from the sale of additional credits.
- BBD RINs - There are no BBD RINs used for compliance with the D6 mandate. This is a reduction of about 330 million gallons of biodiesel (since they receive 1.5 RINs per gallon blended). In addition, the D4 RIN market could see lower RIN prices, since they were previously being set by the marginal BBD RINs used for D6 compliance.

#### 4.2. Infrastructure investment benefit

The chart in the previous section illustrated a RIN market outcome for a hypothetical year. Over time, dedicated policies can change the RIN supply curve significantly. An example from the biodiesel market is the blender tax credit, which causes a downward shift in the supply curve and therefore lower RIN prices when in effect. A price containment mechanism can have the same directional shift in the supply curve over time if it is designed to address RIN supply constraints. One possible way to do so is through strategic investment of the proceeds from the additional RIN sales associated with the price cap.

There are precedents for such “revenue recycling” programs in other markets. In Section 5.3.2, we discuss the program associated with the Northeast’s Regional Greenhouse Gas Initiative (RGGI). Such programs are commonly proposed for national carbon policies, with support such as the following from Resources for the Future, “Scholarly research suggests that an alternative payment mechanism linked to investment can be designed to meet and exceed environmental goals and produce more rapid investment in innovative technologies, and improve environmental outcomes at a lower cost...”<sup>20</sup>

There can be significant sums of money brought in through a price containment mechanism in the RFS. In the example in the previous section, a mechanism that simply covered the hypothetical number of RINs beyond the blend wall led to \$50 million in annual revenue. That

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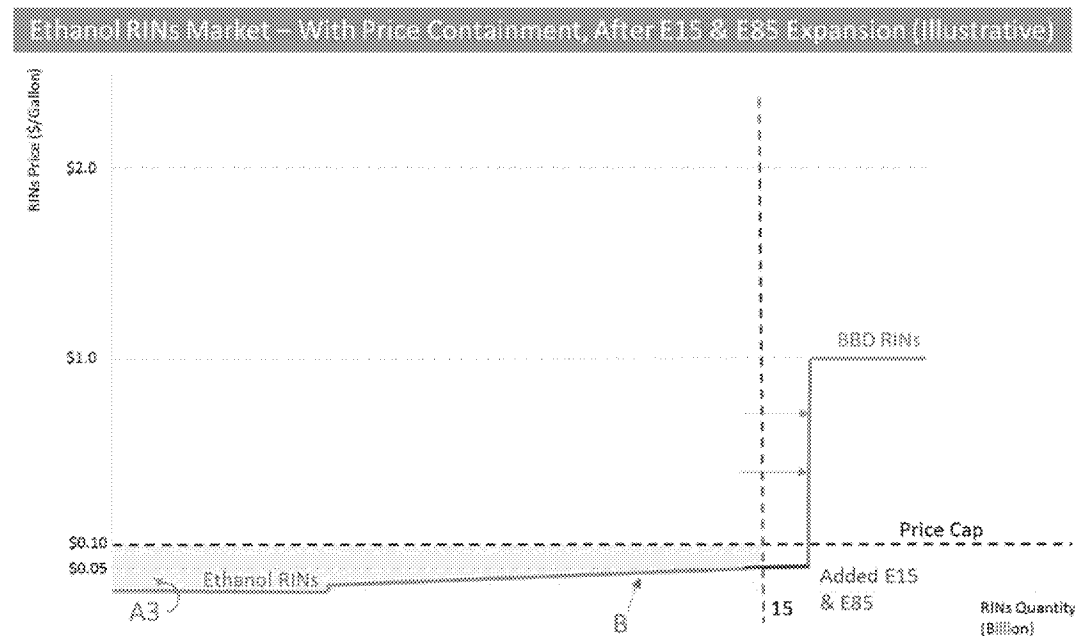
Burtraw, D., & Palmer, K. (2014, November 12). *Resources for the Future: Alternative Compliance Payments under the Clean Power Plan*. Retrieved 2 22, 2018. (See Patino, Echeverri et al. 2012, *Journal of Regulatory Economics*)



number could be much higher if the price cap was set at a level below a portion of the ethanol RIN step of the supply curve, thus leading to a greater number of RINs sold.

If a large share of that revenue was directed to relieving constraints to higher blend fuels, the policy could lead to lower priced RINs associated with more E15 and E85 consumption. In the long term, RIN prices could fall below the price cap, as shown in Figure 7 below. In this example, there are additional low cost RINs added to the supply curve, thus shifting the BBD RINs step out to the right. The new E15 and E85 RINs are plentiful enough to keep the RIN price below the price cap.

**Figure 7: D6 RIN market illustration, including price containment & post-reinvestment**



There are many positive outcomes in the above example. First, the price cap is no longer needed unless there are significant commodity price shifts that disadvantage ethanol against petroleum feedstocks. Second, the RFS volume standards are entirely met with ethanol, versus relying on biodiesel volumes indefinitely, as seems to be the current situation. Finally, note that the entire RIN value (\$750 million) is far lower than in the first example with no price cap (\$15 billion).

## 5. Designing a Mechanism for the RFS

As illustrated throughout this paper, the RFS could greatly benefit from a well-designed price containment mechanism. To be well-designed, the mechanism should adhere to a set of economic principles that support overall policy goals. It should also integrate the price containment experiences in other similar markets. Given these requirements, an ethanol RIN waiver credit program with certain design features could meet the goals of the RFS more effectively than the current RFS without a price containment mechanism.

### 5.1. Economic considerations

The following are some of the key economic considerations for policymakers when evaluating a price containment mechanism for the RFS. The list is not comprehensive, but rather highlights considerations based on the RFS issues and goals discussed in previous sections.

- Minimize overall compliance costs
- Avoid the unintended use of nested fuel tiers as long-term backstops for parent tiers
- Incentivize investment to relieve constraints, such as infrastructure expansion or new technology development
- Reduce volatility and RIN cost uncertainty

### 5.2. Lessons from price containment in other markets

When considering a price containment mechanism for the RFS, policymakers can benefit from the experiences in other similar markets. Price containment mechanisms have proven effective in a variety of markets, such as the Renewable Portfolio Standards and carbon emissions policies in many states and regions (such as the Regional Greenhouse Gas Initiative and California's Low Carbon Fuel Standard). There is even a price containment mechanism within the RFS already, in the form of the cellulosic (D3) waiver credit program.

All of the existing mechanisms were put in place to avoid potential issues in their respective policies, and those issues are in many cases the ones highlighted in this paper as currently plaguing the RFS. The issues most mentioned by policymakers include minimizing consumer costs, ensuring longevity of the policies by avoiding overly-burdensome outcomes, and reducing uncertainties of costs to comply with quantity-based policies.

We describe the mechanisms for several policies in Appendices A-C. We highlight key features of three different policies and the RFS' D3 waiver credits in the table below:

Table 1: Comparing Price Control Mechanisms in Similar Markets

	<b>Renewable Portfolio Standards (RPS)</b>	<b>Regional Greenhouse Gas Initiative (RGGI)</b>	<b>Low Carbon Fuel Standard (LCFS)</b>	<b>Cellulosic Waiver Credits (CWC)</b>
<b>Region</b>	USA (29 states)	Northeast, Mid-Atlantic USA	California	USA
<b>Policy Mandate</b>	Percentage or amount of utilities' electricity sales that must come from renewables	Carbon emissions caps for electric sector	Carbon emissions caps for transportation sector	Sale of waiver credits for compliance with RFS cellulosic mandates
<b>Obligated Parties</b>	Load serving entities (utilities)	Fossil-fuel-based electric power generators	Producers of petroleum-based fuels	Refiners and importers of conventional fuels
<b>Compliance Options</b>	Alternative compliance payments, financial penalties	Acquiring allowances issued by RGGI, traded among participants	Acquiring credits to offset carbon deficits from other participants	Purchasing waiver credits from the EPA at pre-set prices
<b>Credits</b>	Renewable Energy Certificates (REC)	RGGI Allowances	LCFS Credits	Cellulosic Waiver Credits
<b>Price Control Mechanism</b>	Alternative Compliance Payments (ACP), caps on rate impact, caps on contract prices or funds	Cost Containment Reserve (CCR)	Credit Clearance Market (CCM)	Price floor and price ceiling
<b>Government Revenues Generated?</b>	Yes	Yes	No, credits sold by other parties	Yes
<b>Revenue Recycling Methods</b>	Funding Public Benefit Funds (PBF)	Funding emissions reduction programs, assisting ratepayers	Kept within the clean-fuel market place, reallocated among participants	N/A

### 5.3. Waiver credit program design features

Based on the proposed set of principles and goals, and considering experiences with price containment mechanisms in other markets, we provide a set of design recommendations. We focus on the design aspects of an ethanol RIN waiver credit program for the RFS. While this paper does not advocate a particular price containment mechanism, there are clear strengths to the waiver credit approach compared to other options. It is a natural fit for the RFS.

The basic form of an ethanol RIN waiver credit program is straight-forward. The US government, through the EPA, offers waiver credits for sale at a set price to obligated parties. Obligated parties can comply with the RFS by: 1) submitting/retiring RINs that were separated during ethanol blending, similar to the current approach, 2) submitting waiver credits, or 3) submitting/retiring a combination of RINs and waiver credits.

Beyond the basic form, there are several design components critical to the mechanism:

- **Setting the initial waiver credit price** – Setting a price too high will lead to underutilization of the waiver credits and likely a continued breaching of the blend wall. This would defeat the cost minimization goal of the mechanism. The price should be set as low as possible without driving out significant ethanol volumes.

In many markets there is also concern over setting the price too low, which could defeat environmental or other policy goals. For example, in the Renewable Portfolio Standards, an ACP that is too low could result in no construction of solar power facilities. Fortunately, this is not a significant concern in the RFS. There is recent history to demonstrate that the cost of ethanol RINs for volumes below the blend wall is extremely low under market conditions similar to the current conditions. It is possibly as low as \$0 per RIN.

In 2012, the average RIN price was \$0.029 cents per RIN with an ethanol RIN quantity mandate just below the blend wall. Importantly, these prices were seen while the fundamental drivers of RIN costs were similar to their current levels. For example, in the last six months before the blend wall was breached, the average national feedstock spread (ethanol vs. RBOB), adjusted for energy content, was \$0.55 per gallon. Over the first six months of 2017, the same spread averaged \$0.53 per gallon. This would suggest very similar economics, and therefore similar ethanol RIN costs.

This would suggest a recent proposal of a \$0.10 per RIN waiver credit price would only be used for replacing RINs required beyond the blend wall, since obligated parties would find lower cost compliance from purchasing RINs from blenders (or blending the ethanol themselves if vertically integrated).

- **Predictable long-term price path with infrequent adjustments** – There must be a balance between setting a clear long-term waiver credit price path and having the mechanism adjust to significant changes in the market. The mechanism is most valuable if it removes long-term uncertainty. If the mechanism expires after a short period of time, the program will jump right back into a period of speculation and volatile RIN prices. That speculation would actually arrive in RIN prices before the mechanism expires due to RIN banking.
- **Ample waiver credits available to ensure the blend wall is not breached** – The precise volume of credits needed to prevent reliance on BBD RINs is not known in advance of a compliance year. While we can view historical biodiesel volumes to see how far they exceeded their D4 mandate, the presence of banking clouds that picture and the story can change year to year.

In addition, the blend wall level can move significantly year-to-year, particularly during large economic downturns in the economy. For example, from both 2007-to-2008 and

2010-to-2011, there were drops in motor gasoline demand of about 3% in individual years. Applied to a blend wall of about 14 billion gallons, such a drop would remove about 450 million ethanol RINs. It is precisely during these times that the waiver credits could prove most valuable, and therefore they need to be available in sufficient quantities.

Given that this outcome is critical to the benefits of a price containment mechanism, the volume of waiver credits should substantially exceed the quantity estimated as necessary to avoid the blend wall. This is particularly true if there is a set volume of credits that is not responsive to economic shifts year-to-year.

Some stakeholders may have concern that a large volume of waiver credits would displace ethanol blending. However, given that ethanol RIN costs below the blend wall constraint are assumed to be extremely low, there is little risk of obligated parties overly relying on waiver credits regardless of the quantity available.

- **Recycling revenues into constraint-relieving investments** – The selling of waiver credits could lead to tens of millions of dollars in revenues per year. These revenues can be used to reduce long-term compliance costs by supporting initiatives to break through constraints. The most clear constraint deserving attention is the infrastructure constraint to higher ethanol blend fuel expansion. There are multiple examples of government programs that have expanded the number of fueling stations selling E85, but the funding for those programs has been insufficient without dedicated revenue streams like those available through a waiver credit program.<sup>21</sup>

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*USDA announces grants to expand E15, E85 infrastructure* (2015, September 10). Retrieved from Ethanol Producer Magazine: <http://ethanolproducer.com/articles/12612/usda-announces-grants-to-expand-e15-e85-infrastructure>

## Appendix A: Case Study: Renewable Portfolio Standards

A Renewable Portfolio Standard (RPS) is a regulation set by a state, region or nation that requires increasing percentages or amounts of electricity provided to retail customers be generated by eligible renewable sources. As of 2018, twenty-nine states have implemented an RPS, while eight others have adopted Renewable Energy Goals. The existing RPS programs vary in their design, targets, reporting and compliance enforcement methods.

The RPS-eligible sources vary by program, but generally include wind, solar, biomass and other generating technologies. In many cases, there are separate tiers for different sources, such as a solar “carve out,” with specific targets nested within the overall target. This is similar to the biofuel tiers in the Renewable Fuels Standard (RFS). The obligated parties are Load Serving Entities (LSEs), commonly thought of as the utilities that provide electricity to end-use consumers. This is dissimilar to the RFS, since the RFS places the obligation on refiners, not the entities that directly serve end consumers of fuels.

In most RPS programs, the obligated parties can either directly procure or produce renewable electricity, or they can purchase compliance credits, known as Renewable Energy Certificates (REC), from the generators of renewable electricity. The RECs in RPS programs are similar to the RINs used in the RFS. A key difference, however, is that most RPS programs recognize the significant uncertainty in renewable energy technology development and cost competitiveness, and therefore many programs explicitly include price containment mechanisms. As of 2014, at least 24 of 30 states with renewable energy programs included a cost containment mechanism in their regulations.<sup>22</sup>

The price containment mechanisms found in RPS programs include, but are not restricted to the following:<sup>23</sup>

- **Alternative Compliance Payment (ACP)** – An RPS regulation may allow LSEs to pay an ACP for each megawatt-hour (MWh) of renewable electricity that the LSE is short of its compliance obligation, by failing to obtain sufficient RECs. The ACP rates are generally set administratively based on economic principles and expected technology costs over time. ACPs are discussed in more detail below.
- **Caps on rate impacts or revenue requirements** - Some states have created ceilings that limit how much a renewable energy policy can increase electricity rates for customers. They are often implemented in the form of set percentages of the utilities’ annual retail revenue requirement to be spent on compliance with RPS. Thus, utilities that have spent the specified percentage on renewables may be considered compliant even if they have not met the annual RPS targets.<sup>24</sup>
- **Renewable energy contract price caps** - These caps limit the amount that a renewable energy generator can charge a utility for a renewable energy or REC purchase, which indirectly caps prices.

<sup>22</sup> Heeter, J., Barbose, G., Bird, L., Weaver, S., Flores-Espino, F., Kuskova-Burns, K., & Wise, R. (2014). *A Survey of State-Level Cost and Benefit Estimates of Renewable Portfolio Standards*. National Renewable Energy Laboratory.

<sup>23</sup> Barbose, G. (2017). *U.S. Renewables Portfolio Standards 2017 Annual Status Report*. Lawrence Berkeley National Laboratory.

<sup>24</sup> Stockmayer, G., Finch, V., Komor, P., & Mignogna, R. (2012). Limiting the costs of renewable portfolio standards: A review and critique of current methods. *Energy Policy*, 155-163

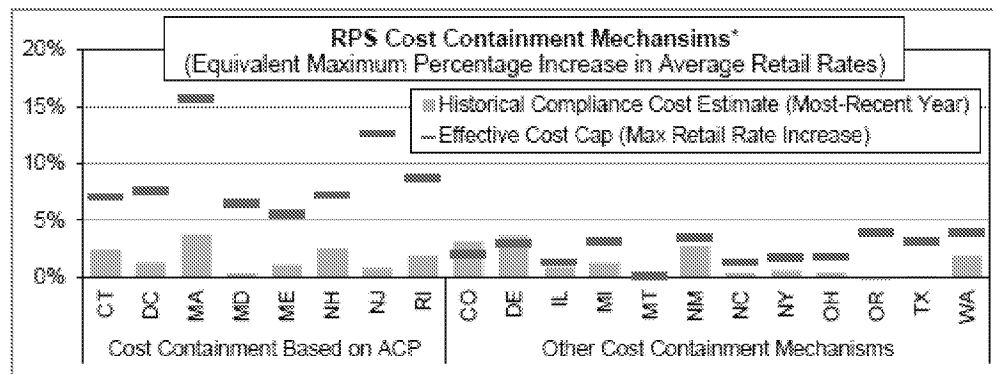
- **Renewable energy fund caps** – Some states, such as New York, have established specific programs for the purpose of a central RPS procurement. These caps limit the amount of funding that can be made available to cover the program's budget.
- **Financial penalties** - Similarly to ACPs, penalties can be imposed on LSEs who are not able to meet their RPS requirements for the year. They differ from ACPs insofar as they cannot be passed through to ratepayers and/or the penalty rate is not pre-specified.<sup>25</sup>

Among these mechanisms, ACPs and caps on rate impacts are the most common.<sup>26</sup> The latter are less relevant to the Renewable Fuels Standard since gasoline prices are not regulated to the same extent as electricity prices and the RFS obligated parties, as currently designated, would have no way to administer such caps. It is therefore more applicable to the RFS to consider the design and implementation of ACPs.

The design and price of ACPs vary by state. The total ACP cost is calculated as the state-determined ACP rate multiplied by the LSE's deficient kilowatt-hours. In some states, ACPs are required and thus they constitute the cost of RPS compliance. In Illinois, for example, alternative electricity suppliers must fulfill half of their RPS requirement by purchasing ACPs. In most other states, however, ACPs are optional. LSEs therefore pick the option that allows them to fulfill their RPS requirement at the least cost: if the ACP rate is higher than purchasing RECs or renewable energy, they will opt for this method of compliance. In this way the ACP effectively sets a ceiling on the REC and renewable procurement costs.

Typically, ACP costs have proven higher than the cost of meeting the requirement by generating renewable energy or purchasing RECs, but they have been critical in salvaging several RPS programs when costs may have otherwise have risen unsustainably. A 2014 study has shown that in almost all states the historical cost of complying with RPS has been lower than the effective cost cap (Figure 8). This means that the ACP has not been binding.

**Figure 8. RPS cost caps compared to estimated recent historical cost**<sup>27</sup>



Source: Heeter, et al., 2014

<sup>25</sup> Heeter, et al, 2014

<sup>26</sup> Pierpont, B. (2012, December). *Renewable portfolio standards – the high cost of insuring against high costs*. Retrieved February 07, 2018, from Climate Policy Initiative: <https://climatepolicyinitiative.org/2012/12/17/renewable-portfolio-standards-the-high-cost-of-insuring-against-high-costs/>

<sup>27</sup> Further note on the chart: "For states with multiple cost containment mechanisms, the cap shown here is based on the most-binding mechanism." Heeter, et al., 2014.

The revenue from ACPs is generally used to fund a public benefits fund that supports renewable development, demand-side energy efficiency programs, low-income assistance and weatherization programs in the state.<sup>28</sup> These funds are often managed by governmental entities and in fewer cases by non-profit organizations or corporations created specifically to manage the fund. In some cases, separate sub-funds are created for specific technologies. For instance Maryland and Massachusetts set aside the revenue from ACPs collected from the solar carve-out obligation to fund more solar deployment. These funds can benefit communities in a wide variety of ways, including environmental health improvements, energy costs reductions achieved through energy efficiency, financial assistance to low-income customers and support to home-owners for home improvement initiatives.

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<sup>28</sup> Stockmayer, et al., 2012; U.S. Department of Energy. (2010). *Public Benefit Funds: Increasing Renewable Energy & Industrial Energy Efficiency Opportunities*. U.S. Department of Energy.



## Appendix B: Case Study: Various Carbon Policies

Many countries around the world and states within the United States have set goals on limiting carbon emissions from fossil fuel combustion. To achieve these goals, many governments have formed carbon policies that limit emissions in single or multiple sectors of their economies, either directly through emissions caps or carbon pricing, or indirectly through regulated mandates on technologies or emissions controls. Quantity targets generally involve market mechanisms through cap-and-trade systems, whereby entities can buy and sell emissions permits in order to comply with emission limits. Price targets are often implemented in the form of a carbon tax: parties that emit carbon dioxide (CO<sub>2</sub>) pay the government a set amount per ton of CO<sub>2</sub> emitted. Hybrid systems include imposing upper limits on the price for emissions permits by making additional permits available at a predetermined price. These policies can often be more efficient than pure price or pure quantity-based policies, because they are better equipped to deal with market uncertainty.<sup>29</sup>

A key difference from the RFS is that carbon policies are designed to reduce emissions, not to provide direct incentives for increasing a certain activity (like blending renewable fuels). Therefore, carbon allowances are generally not created by market participants, but rather auctioned by the government or freely allocated. Similar to the RFS, however, these credits are tradable and they are submitted by obligated parties to cover their annual emissions.

Successful carbon cap-and-trade programs have been implemented in Europe, New Zealand, Australia, North America, and recently in China. Several countries across Africa, Asia, Europe, Central and South America currently have a carbon tax in place.<sup>30</sup> There exists an expansive literature on the possible design and implementation of a carbon policy in the United States, although no such policy has been approved at the federal level. Instead, there are regional policies, such as the Regional Greenhouse Gas Initiative (RGGI) in the Northeast U.S. and the AB 32 program in California, which is in the process of expanding.

Price containment mechanisms feature prominently in both the existing carbon policies and the many proposals at the U.S. federal level. They are often referred to as “safety valves” in the carbon policy context. The most common form involves the government releasing additional allowances into the market if a set carbon price is reached. This additional supply of allowances moderates the price. The added allowances are either newly created or borrowed from future years. An example of such a program is the Cost Containment Reserve (CCR) in the RGGI program, described in the next section.

### 5.3.1. Regional Greenhouse Gas Initiative

The Regional Greenhouse Gas Initiative (RGGI) was the first mandatory cap-and-trade program to limit CO<sub>2</sub> emissions from the power sector in the U.S. The participating states are all located in the Northeast and Mid-Atlantic regions and include Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New York, Rhode Island, and Vermont.

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<sup>29</sup> Aldy, J., Hafstead, M., Metcalf, G., Murray, B., Pizer, W., Reichert, C., & Williams, R. (2017). *Resolving the Inherent Uncertainty of Carbon Taxes*. Harvard Environmental Law Review.

<sup>30</sup> The World Bank. (2017, December 01). *Carbon Pricing Dashboard*. Retrieved February 09, 2018, from [http://carbonpricingdashboard.worldbank.org/map\\_data](http://carbonpricingdashboard.worldbank.org/map_data)

CO<sub>2</sub> emissions are regulated through CO<sub>2</sub> Budget Trading Programs that vary by state, but are all aligned with the RGGI Model Rule.<sup>31</sup> The overarching RGGI regulation requires fossil-fuel-based electric power generators above a certain size to obtain allowances equal to their CO<sub>2</sub> emissions over a three-year control period. Each allowance corresponds to the permission to emit one short ton of CO<sub>2</sub> and can be traded between different regulated parties. Allowances are issued by the states' Budget Trading Programs, which also establish participation in regional allowance auctions. There is a cap to the maximum amount of allowances that can be issued, which is set yearly by the RGGI and decreases over time.

RGGI includes a Cost Containment Reserve (CCR). The CCR consists of additional allowances on top of the caps, which are made available only when the allowance prices exceed a predefined threshold. The goal is to protect participants from exceedingly high emissions reduction costs. Both the threshold price at which the CCR is triggered and the size of the reserve is set to change every year: the former increases, while the latter decreases over time.

All 15 million CCR allowances were sold in 2014 to 2015, but the reserve was not triggered in 2016. Those 15 million allowances represent 2.5% of all allowances expected in RGGI from 2014 to 2020.<sup>32</sup> The independent market monitor for RGGI, Potomac Economics, emphasizes the value of the CCR, stating that "Since the program changes announced in February 2013, the CCR has been a significant factor in reducing the volatility of allowance prices."<sup>33</sup> Adding that the CCR "...may have helped to limit price volatility: (a) directly by providing for the sale of ten million additional allowances during 2015 and (b) indirectly since the potential for CCR allowances to be sold in future auctions limits upward speculative pressure on prices."<sup>34</sup>

The nine RGGI states receive significant revenues from the initial auctions of allowances and the CCRs. Through 2015, they had generated \$1.7 billion, most of which has been invested in initiatives that further reduce emissions or assist ratepayers with the added cost on their electricity bills. The investment categories are summarized in the table below:<sup>35</sup>

Spending Category	Percentage of 2015 RGGI investment	Outcome
Energy Efficiency	64%	\$1.3b lifetime energy bill savings to over 141,000 households and 5,700 businesses
Clean and Renewable Energy	16%	\$785.8m lifetime energy bill savings to 19,600 households and 122 businesses

<sup>31</sup> The Regional Greenhouse Gas Initiative. (2018). *Program Overview and Design: Elements of RGGI*. Retrieved 02 21, 2018, from <https://www.rggi.org/program-overview-and-design/elements>

<sup>32</sup> Potomac Economics. (2017). *Annual Report On The Market For RGGI CO<sub>2</sub> Allowances: 2016*. Potomac Economics. Retrieved February 22, 2018 from [https://www.rggi.org/sites/default/files/Uploads/Market-Monitor/Annual-Reports/MM\\_2016\\_Annual\\_Report.pdf](https://www.rggi.org/sites/default/files/Uploads/Market-Monitor/Annual-Reports/MM_2016_Annual_Report.pdf)

<sup>33</sup> Idem

<sup>34</sup> Potomac Economics. (2016). *Annual Report On The Market For RGGI CO<sub>2</sub> Allowances: 2015*. Potomac Economics. Retrieved February 22, 2018 from [https://www.rggi.org/sites/default/files/Uploads/Market-Monitor/Annual-Reports/MM\\_2015\\_Annual\\_Report.pdf](https://www.rggi.org/sites/default/files/Uploads/Market-Monitor/Annual-Reports/MM_2015_Annual_Report.pdf)

<sup>35</sup> The Regional Greenhouse Gas Initiative. (2017). *The Investment of RGGI Proceeds in 2015*. RGGI, Inc.

Greenhouse Gas Abatement	4%	Avoided release of 636,000 short tons of CO <sub>2</sub>
Direct Bill Assistance	10%	\$40.4m returned in bill credits and assistance to consumers

### 5.3.2. Revenue Recycling

As just discussed, carbon policies with both initial emissions auctions and allowance-based reserve systems can bring in substantial amounts of money. Therefore, an important aspect of carbon policy design is determining how the revenues collected are to be returned to the economy. This is often referred to as “revenue recycling” and is covered in a large amount of academic literature.

One option is to use some of the revenues to pay for emissions reductions in sectors not covered by the carbon regulation, in the case where emissions targets have not yet been met.<sup>36</sup> Alternatively, the revenues could be used to invest in energy efficiency, renewable and other low-carbon technologies. Another option is to reinvest the revenues in other initiatives that touch the economy at large, such as income tax cuts or infrastructure spending.<sup>37</sup> For example, returning the revenues to individuals and businesses through lump-sum rebates can significantly lower the cost of a carbon tax. This cost offsetting idea has been popular in recent proposals that seek to achieve a carbon policy with minimal regulatory burden.

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<sup>36</sup> Murray, B., Pizer, W., & Reichert, C. (2017). *Increasing Emissions Certainty Under a Carbon Tax*. Harvard Environmental Law Review.

<sup>37</sup> Goulder, L., & Hafstead, M. (2013). *Tax Reform and Environmental Policy*. Washington: Resources For the Future; Metcalf, G. (2017). *Implementing a Carbon Tax*. Washington: Resources For the Future.

## Appendix C: Case Study: California's Low Carbon Fuel Standard

California's Low Carbon Fuel Standard (LCFS) is administered by the California Air Resources Board (ARB). Implemented in 2011, its goal is to reduce the carbon intensity of the transportation fuel consumed in California by at least 10% by 2020.<sup>38</sup> Unlike the RFS, it does not specify which fuels or what volumes of each are necessary to satisfy the requirement, letting the market determine the mix of fuels needed. Instead, it assigns to each fuel type a carbon intensity rating, measured in CO<sub>2</sub> equivalent, which can be above or below the standard. LCFS deficits and credits are then defined as the difference between the fuel's rating and the standard (positive for deficits, negative for credits). Obligated parties must maintain compliance by purchasing or generating enough credits to offset the deficits they have produced in a calendar year.

The LCFS includes a price cap in the form of a Credit Clearance Market (CCM). It was developed with the following goals:<sup>39</sup>

- Allow compliance even if a credit shortfall occurs
- Strengthen incentives to invest in low carbon intensity fuels
- Increase certainty regarding the maximum cost of compliance
- Prevent extreme market volatility
- Ensure that willing credit generators can sell available credits

The CCM works as follows: If the obligated parties fail to offset their annual deficit, they must purchase their pro-rata share of credits in the CCM. Other parties that hold available credits for that year offer them for sale in this market at a set price of \$200 per metric ton, adjusted annually for inflation. The LCFS Credit Prices have never come close to this ceiling, having traded at their highest point just above \$120 per metric ton.

Prior to selecting the CCM option, the ARB staff had also considered a credit window option, which was closer in design to the price caps in RGGI and many RPS programs. One of the major differences between these two mechanisms is the way in which the revenues collected are reinvested. In the clearance market process, the proceeds are kept within the clean fuels marketplace: the money flows from parties that have not been able to offset their deficits to those that hold credits. In the credit window process instead, proceeds are distributed to low-carbon intensive fuel producers or used for other greenhouse gas reductions to mitigate the loss in LCFS benefits.<sup>40</sup>

With such cost-containment mechanisms in place, the LCFS achieved 98% compliance in 2015. Given that one party was short after the deadline, a CCM was held in 2016, which enabled them to cover their remaining 2015 obligation.<sup>41</sup> In 2017, the CCM for 2016 did not occur since all obligated parties with deficits were able to meet their compliance obligation.

<sup>38</sup> California Air Resource Board. (2016, May 10). *LCFS Basics*. Retrieved February 08, 2018, from <https://www.arb.ca.gov/fuels/lcfs/background/basics.htm>

<sup>39</sup> Idem.

<sup>40</sup> Wade, S. (2016). *California Low Carbon Fuel Standard Cost Containment Provisions*. California Air Resources Board.

<sup>41</sup> Wade, 2016

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## Deal-Making on the RFS: Follow the North Star

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With a flurry of negotiations and political conflict, the Renewable Fuel Standard (RFS) squeezed its way into the national news cycles of recent weeks (Kopperud, February 23, 2018; Renshaw, February 27, 2018; *farmdoc daily*, February 28, 2018). The key issue for negotiations is likely to involve questions about what actions can be taken by EPA administratively and what actions would require an act of the U.S. Congress.

According to news reports, the negotiations are considering multiple options: (1) count U.S. ethanol exports toward the annual requirements; (2) institute a price cap on RIN prices; (3) limit RIN trades to blenders and refiners, removing market speculation; and (4) waive the limits on blending E15 (15% ethanol content in gasoline). In addition to these four options, two others that might be in consideration involve waiving requirements for specific refineries, such as small refineries. Given the attention around the bankruptcy of the refiner Philadelphia Energy Solutions, Inc. (PES), there may also be an attempt to waive the requirements for it.

Since Congress created the RFS in 2005 and expanded it substantially in 2007, the statute and its mandates on the transportation fuels industry have been extensively litigated. For the negotiations, the numerous court decisions help provide plenty of legal guidance on the statute. Those court decisions, however, leave very little room for negotiators to make changes outside of revising the statute through an act of Congress.

### Clear Guidance from the Courts: Follow the North Star of the RFS

Any analysis about negotiating modifications to the RFS must begin and end with the very clear direction provided by courts thus far. The RFS was designed by Congress to be a market forcing policy that would create demand for renewable fuels through the mandates for increasing consumption; the north star of the RFS, it must guide all EPA implementation decisions (*farmdoc daily*, August 18, 2017; October 5, 2017). Accordingly, any of the options being negotiated that would operate to reduce demand, decrease consumption of renewable fuels, or that otherwise conflicts with the market-forcing intent of Congress, would be in violation of the statute and would likely not hold up in court.

#### (1) Count ethanol exports toward annual requirements

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It would not appear that the RFS statute permits this revision because the statute is very clearly intended only for mandates on domestic transportation fuels. Specifically, the general requirements are for implementation that will “ensure that gasoline sold or introduced into commerce in the United States, on an annual average basis, contains the applicable volume of renewable fuel” in the statutory schedule (42 U.S.C. §7545(o)(2)). The statute, in fact, contains numerous uses of the phrase “sold or introduced into commerce in the United States” but provides no authority for addressing exports of renewable fuel. It is difficult to conclude that the statute permits any use of exports to meet the mandated requirements, especially if doing so would reduce the demand for renewable fuel domestically or conflict with the market-forcing intent of the statute.

#### *(2) Institute a RIN price cap*

As discussed previously, implementing a cap on RIN prices would operate as a waiver of the volume mandate, reducing the levels in the statute (*farmdoc daily*, December 21, 2017). EPA’s waiver authority to reduce the RFS mandates is limited (except for cellulosic ethanol) and does not provide for an effective waiver through capping RIN prices. In terms of general waiver authority, EPA can waive the total RFS mandated volumes if implementation of the mandate will cause severe economic harm (*farmdoc daily*, October 12, 2017). Or, EPA can waive the RFS volumes if there is inadequate domestic supply of renewable fuel to meet the mandate but that phrase only includes factors that impact the availability of renewable fuel to refiners, blenders and importers; it does not include downstream factors or consumers (*farmdoc daily*, August 18, 2017; October 5, 2017; January 14, 2016). For the general waiver authority, the guidance from the courts is considerable and clear: there is no legitimate cause for direct waiver of any portion of the RFS outside of the explicit authorities. Because a cap on RINs prices operates as a waiver by other means, it also must adhere to this guidance.

Additionally, if a RIN price cap operates against biomass-based diesel as an effective waiver it is likely not permissible. The biomass-based diesel volumes can be waived if there is a significant disruption of feedstock or other market problem that causes biomass-based diesel prices to spike significantly (*farmdoc daily*, October 19, 2017). Following the guidance from the courts on the general waiver provisions, a cap on RIN prices that impacts only biomass-based diesel is also not likely to survive a court challenge because it operates fundamentally as a waiver on RFS volumes by other means; a waiver not explicitly granted in the RFS statutes is impermissible.

#### *(3) Limit RIN trades to blenders and refiners*

Under the statute, this limit might be acceptable. The RIN credit program applies to “any person that refines, blends, or imports gasoline” and explicitly permits the person generating a RIN to “use the credits, or transfer all or a portion of the credits to another person, for the purpose of complying” with the statutory mandates (42 U.S.C. §7545(o)(5)). As such, there does not appear to be any explicit limitation on the ability to restrict RIN trades to those parties listed in the statute. Any question about such a limit would then fall to the analysis above regarding its impact on the market-forcing intention of the statute. If such a revision did not harm that intent, it could well pass muster with the courts.

The economic effects of limiting RIN trading to blenders and refiners is uncertain. If one assumes that the current RIN market is inefficient and prone to manipulation and speculative excess, then limiting trading to only those directly obligated by the RFS may improve the efficiency of price discovery in this market. However, it is far from certain that this is an accurate description of the RINs market. In fact, there is evidence that the RIN market is a quite rational price discovery mechanism (*farmdoc daily*, August 23, 2017). If the current market is indeed an efficient mechanism, then limiting participation could easily make the market less liquid and prices even more volatile.

#### *(4) Waive limits on E15*

Under the RFS, there are no provisions that explicitly address this issue. The Reid Vapor Pressure (RVP) provisions are in a previous section of the statute (42 U.S.C. §7545(h)). In general, RVP measures volatility of gasoline and the lower the RVP the less volatile it is (Bracmort, 2017). The Clean Air Act (CAA) prohibits the sale of gasoline in the lower 48 states during the high ozone months of summer (June 1-Sept. 15) that is above 9 pounds per square inch (psi) because of volatility. The provision above, however, permits gasoline containing 10 percent ethanol to be sold at an RVP that is 1 psi above the limit

(e.g., 10 psi) unless a governor of a state petitions and EPA finds that the higher limitation will increase air pollution in any area of the state.

Notably, EPA has previously granted partial waivers for E15 under the existing CAA provisions for automobiles manufactured after 2001 (EPA, E15 Fuel Partial Waivers). EPA has interpreted the CAA provisions to apply the 1 psi ethanol waiver only to E10 blends, leaving it discretion for RVP on other blends including E15 (EPA 2011). From the perspective of the RFS statute, the analysis is more straightforward. If changes to the RVP limitations works to increase demand for renewable fuels it would not be prohibited by the RFS provisions (*farmdoc daily*, February 28, 2018).

#### (5) Waivers for Small Refiners

Providing for small or specific refineries raise slightly different issues. In terms of small refineries (below 75,000 barrels of annual throughput), the RFS statute provided temporary exemptions from the mandate. It also provided EPA authority to extend the previous exemptions upon petition from the refinery that it would be subject to disproportionate economic hardship to the petitioning refinery. A recent court decision on this requires that EPA be reasonable and not create too high of a hurdle; it must not make the refinery's viability a necessary component for an exemption (*farmdoc daily*, December 6, 2017).

The challenge for this provision comes in the extent of its usage. Generally, EPA has to consider individual petitions from small refineries for an extension of the exemption from the mandate based on a finding of disproportionate economic hardship. An existing Department of Energy matrix and recommendations appear to carry significant weight in this decision. The statute and court decision indicate that the waiver decision requires an individualized evaluation of the economic hardship for each small refinery.

It remains uncertain how broad this authority for EPA can be interpreted. Specifically, an expansive interpretation might permit an effective backdoor waiver to the mandates if EPA were to exempt all small refineries in a year after having established volumes. Exempting all small refineries would effectively waive their portion of the mandate in that year. This is, however, likely to be limited to a single use because EPA would have to incorporate expectations for that blanket exemption extension in future years, shifting the small refinery mandates to larger refineries. It is hard to imagine a court permitting EPA to continue a blanket exemption policy without accounting for it; doing so would violate basic tenets of good faith, drifting into the realm of arbitrary and capricious rulemaking by the agency.

#### (6) Waivers for PES or Other Refiners

Finally, the PES bankruptcy raises the potential that negotiators or EPA might look to waive the requirements for that specific refinery. The RFS statute does not provide for individualized refinery waivers outside of the small refinery exemption provisions. Lacking explicit authority to waive requirements for individual large refineries, any analysis returns again to the north star of the statute. If EPA's decisions have the effect of reducing demand or usage, then they are likely to be found by a court to violate the market-forcing intent of the statute. This same reasoning would also seem to apply to any attempts to waive requirements for individual refineries such as PES. It is unknown at this time, however, what arguments would be used for such a waiver, nor is there clear guidance on the treatment of a bankrupt refinery. If this becomes a significant point in the negotiations, further analysis will be necessary.

### Concluding Thoughts

Controversy continues to surround the RFS. Negotiators, however, have limited options in front of them to resolve the disputes administratively. Courts have not granted EPA expansive definitions of its authorities under the statute, requiring it instead to adhere to the primary market-forcing intent of Congress. This is the north star of the RFS and must guide EPA's interpretations of the statute and actions implementing it; it should also guide negotiators. At its core, this is rooted in a fundamental principle of lawmaking under the Constitution (*farmdoc daily*, January 16, 2014). It is therefore likely that any significant changes to the RFS would have to come from Congress via legislation that amends the statute.

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- Irwin, S. and D. Good. "How to Think About Biodiesel RINs Prices under Different Policies." *farmdoc daily* (7):154, Department of Agricultural and Consumer Economics, University of Illinois at Urbana-Champaign, August 23, 2017.
- Irwin, S., and J. Coppess. "Still Another Wrinkle in the RFS: A RINs Price Cap." *farmdoc daily* (7):233, Department of Agricultural and Consumer Economics, University of Illinois at Urbana-Champaign, December 21, 2017.
- Kopperud, S. "Trump, Cruz Grassley-RFS Duel of the Titans." *Brownfield Ag News for America*, Inside D.C., February 23, 2018.
- Renshaw, J. "White House pushes for more talks after 'no deal' on biofuels." *Reuters*, Environment, February 27, 2018.
- United States Environmental Protection Agency. "Gasoline Standards: E15 Fuel Partial Waivers." <https://www.epa.gov/gasoline-standards/e15-fuel-partial-waivers>

Message

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**From:** Argyropoulos, Paul [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=0149B93D2780437A9C2B6D8477DF7991-PARGYROP]  
**Sent:** 4/5/2016 12:48:02 PM  
**To:** Korotney, David [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=7b00e16e09654b94bc6146550ca87936-Korotney, David]; Sutton, Tia [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=25e87403f63143acbb959446512a372c-Sutton, Tia]; Machiele, Paul [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=b71a67c326714ebbaa72eda552e55282-Machiele, Paul]; Burkholder, Dallas [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=667ef175292d4784997e454a9985b3b3-Burkholder, Dallas]; Lie, Sharyn [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=02041179e5dd4b9e9c5ea63701032c04-slie]; Camobreco, Vincent [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=9e14778656044583b78723cd299602bf-VCAMOBRE]; Orlin, David [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=aa64dad518d64c5f9801eb9bb15b7ec3-DORLIN]; Dubois, Roland [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=835458b87b574ccbb1704415df8413d1-RDUBOIS]  
**CC:** Hengst, Benjamin [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=c414e2bf04a246bb987d88498eefff06-Hengst, Benjamin]; Bunker, Byron [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=ddf7bcf023d241a9a477a2dc75d5901c-Bunker, Byron]; Simon, Karl [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=4d781d1ad595415db3a4e768c2d2b3fc-Simon, Karl]  
**Subject:** RE: Revised responses to the QFRs from Janet's RFS hearing  
**Attachments:** QFRs from 2-24-16 EPW RFS Hearing v2 BH - DK - PA.docx

My thoughts in the attached.

Thanks, Paul

Paul Argyropoulos  
Senior Policy Advisor  
US EPA  
Office of Transportation and Air Quality  
Phone: 202-564-1123  
Mobile: 202-577-9354  
Email: argyropoulos.paul@epa.gov  
Web: www.epa.gov

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**From:** Korotney, David  
**Sent:** Tuesday, April 05, 2016 8:01 AM  
**To:** Sutton, Tia <sutton.tia@epa.gov>; Argyropoulos, Paul <Argyropoulos.Paul@epa.gov>; Machiele, Paul <machiele.paul@epa.gov>; Burkholder, Dallas <burkholder.dallas@epa.gov>; Lie, Sharyn <Lie.Sharyn@epa.gov>; Camobreco, Vincent <Camobreco.Vincent@epa.gov>; Orlin, David <Orlin.David@epa.gov>; Dubois, Roland <Dubois.Roland@epa.gov>  
**Cc:** Hengst, Benjamin <Hengst.Benjamin@epa.gov>; Bunker, Byron <bunker.byron@epa.gov>; Simon, Karl <Simon.Karl@epa.gov>  
**Subject:** RE: Revised responses to the QFRs from Janet's RFS hearing

A few edits. Dallas will need to add more.

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**From:** Sutton, Tia

**Sent:** Monday, April 04, 2016 10:53 PM

**To:** Argyropoulos, Paul <Argyropoulos.Paul@epa.gov>; Machiele, Paul <machiele.paul@epa.gov>; Burkholder, Dallas <burkholder.dallas@epa.gov>; Korotney, David <korotney.david@epa.gov>; Lie, Sharyn <Lie.Sharyn@epa.gov>; Camobreco, Vincent <Camobreco.Vincent@epa.gov>; Orlin, David <Orlin.David@epa.gov>; Dubois, Roland <Dubois.Roland@epa.gov>

**Cc:** Hengst, Benjamin <Hengst.Benjamin@epa.gov>; Bunker, Byron <bunker.byron@epa.gov>; Simon, Karl <Simon.Karl@epa.gov>

**Subject:** Revised responses to the QFRs from Janet's RFS hearing

Hi all,

Please see the attached cleaned-up version, which also includes some additional comment bubbles from Ben. As a reminder, we have been asked to send these to Janet McCabe's office for review by COB on Wednesday.

Some items of note:

- **Paul/Roland**- please see comment from Ben in response to #6-9 (and note that since we're saying the same thing to all 3 questions, we only need to write the response once as "Response 6-9", not under each question).
- **Dallas/Dave**- see comment from Ben in the response to #6-9 for additional cites.
- **Roland**- you may want to review the updated response to #10 given your comment bubble there.
- **Sue/Janet**- are the responses to #17 & 18 okay, or are you still discussing language with Byron?

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**From:** Hengst, Benjamin

**Sent:** Monday, April 4, 2016 8:59 PM

**To:** Sutton, Tia

**Cc:** Dubois, Roland; Orlin, David; Cohen, Janet

**Subject:** QFRs (Janet's Feb RFS hearing)

Tia-- See attached. I've made a few decisions on what responses to go with. I've also made a few edits throughout. Can you ask Dallas/Dave to fill out a few of the references? I think we'll need to discuss the gasoline price questions with Paul M and team, too (see my comments).

Roland--can you please review this version? Much of this incorporates your edits, but these responses have been changed enough that they deserve a fresh review.

Janet -- are the responses in the attached those that you and Sue are good with? I got a bit lost in all the back-and-forth on the small refiner questions.

Thanks

Ben

## Appointment

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**From:** Atkinson, Emily [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=BB2155ADEF6A44AEA9410741F0C01D27-ATKINSON, EMILY]  
**Sent:** 3/7/2018 1:04:13 PM  
**To:** Wehrum, Bill [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=33d96ae800cf43a3911d94a7130b6c41-Wehrum, Wil]; Leopold, Matt [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=4e5cdf09a3924dada6d322c6794cc4fa-Leopold, Ma]; Baptist, Erik [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=10fc1b085ee14c6cb61db378356a1eb9-Baptist, Er]  
**Subject:** General Discussion  
**Attachments:** RE: Meeting with Bill  
**Location:** WJC-N 5400  
  
**Start:** 3/8/2018 9:00:00 PM  
**End:** 3/8/2018 9:30:00 PM  
**Show Time As:** Busy

### **Re: RFS Small Refinery Exemption Issue**

**To:** Bill Wehrum, Matt Leopold, Erik Baptist



RE: Meeting with  
Bill

Message

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**From:** Atkinson, Emily [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=BB2155ADEF6A44AEA9410741F0C01D27-ATKINSON, EMILY]  
**Sent:** 3/2/2018 2:54:00 PM  
**To:** Baptist, Erik [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=10fc1b085ee14c6cb61db378356a1eb9-Baptist, Er]; Lewis, Josh [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=b22d1d3bb3f84436a524f76ab6c79d7e-JOLEWIS]  
**CC:** Veney, Carla [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=c354b58bf2b1464d8afac7bbd2a7a88c-CVeney]  
**Subject:** RE: Meeting with Bill

Will do

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**From:** Baptist, Erik  
**Sent:** Friday, March 02, 2018 9:49 AM  
**To:** Atkinson, Emily <Atkinson.Emily@epa.gov>; Lewis, Josh <Lewis.Josh@epa.gov>  
**Cc:** Veney, Carla <Veney.Carla@epa.gov>  
**Subject:** RE: Meeting with Bill

Early next week would be great. Thanks!

**Erik Baptist**

Senior Deputy General Counsel  
Office of General Counsel  
U.S. Environmental Protection Agency  
1200 Pennsylvania Ave., NW  
Washington, DC 20460  
(202) 564-1689  
[baptist.erik@epa.gov](mailto:baptist.erik@epa.gov)

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**From:** Atkinson, Emily  
**Sent:** Friday, March 2, 2018 9:47 AM  
**To:** Lewis, Josh <[Lewis.Josh@epa.gov](mailto:Lewis.Josh@epa.gov)>; Baptist, Erik <[Baptist.Erik@epa.gov](mailto:Baptist.Erik@epa.gov)>  
**Cc:** Veney, Carla <[Veney.Carla@epa.gov](mailto:Veney.Carla@epa.gov)>  
**Subject:** RE: Meeting with Bill

Hi Erik,

Are you all wanting to do this today or early next week?

Emily Atkinson  
Management Analyst/Office Manager  
Immediate Office of the Assistant Administrator  
Office of Air and Radiation, USEPA  
Room 5412B, 1200 Pennsylvania Avenue NW  
Washington, DC 20460  
Voice: 202-564-1850  
Email: [atkinson.emily@epa.gov](mailto:atkinson.emily@epa.gov)

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**From:** Lewis, Josh  
**Sent:** Friday, March 02, 2018 9:45 AM  
**To:** Baptist, Erik <[Baptist.Erik@epa.gov](mailto:Baptist.Erik@epa.gov)>  
**Cc:** Veney, Carla <[Veney.Carla@epa.gov](mailto:Veney.Carla@epa.gov)>; Atkinson, Emily <[Atkinson.Emily@epa.gov](mailto:Atkinson.Emily@epa.gov)>  
**Subject:** Re: Meeting with Bill

Will do. + Emily

On Mar 1, 2018, at 4:43 PM, Baptist, Erik <[Baptist.Erik@epa.gov](mailto:Baptist.Erik@epa.gov)> wrote:

Josh,

Matt would like to have a meeting with Bill regarding the RFS Small Refinery Exemption issue, on which Bill briefed the Administrator this morning. Please work with Carla to find a time that meets both of our principals' busy schedules – thanks!

**Erik Baptist**  
Senior Deputy General Counsel  
Office of General Counsel  
U.S. Environmental Protection Agency  
1200 Pennsylvania Ave., NW  
Washington, DC 20460  
(202) 564-1689  
[baptist.erik@epa.gov](mailto:baptist.erik@epa.gov)



Message

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**From:** Brugato, Thomas [tbrugato@cov.com]  
**Sent:** 4/19/2018 6:01:46 PM  
**To:** Elliott, Don [DElliott@cov.com]; Leopold, Matt [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=4e5cdf09a3924dada6d322c6794cc4fa-Leopold, Ma]  
**CC:** Raburn, Janice [Janice.Raburn@bp.com]; Baptist, Erik [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=10fc1b085ee14c6cb61db378356a1eb9-Baptist, Er]; Gunasekara, Mandy [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=53d1a3caa8bb4ebab8a2d28ca59b6f45-Gunasekara,]; Wehrum, Bill [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=33d96ae800cf43a3911d94a7130b6c41-Wehrum, Wil]; Stout, Robert [Robert.Stout@bp.com]; Stutz, Rachel [Rachel.Stutz@bp.com]; Guzy, Gary [GGuzy@cov.com]; Long, Robert [rlong@cov.com]  
**Subject:** RE: Thank you and BP letter to EPA  
**Attachments:** 2018-04-19 RVP Paper.pdf

Matt, Bill, Erik, and Mandy,

Please find attached one other follow-up item from our discussion on Monday: the short paper addressing whether statutory authority exists to extend the 1 PSI RVP waiver to blends containing more than 10% ethanol.

Thank you again for the meeting on Monday.

Best regards,

Thomas

**Thomas Brugato**

Covington & Burling LLP  
One CityCenter, 850 Tenth Street, NW  
Washington, DC 20001-4956  
T +1 202 662 5515 | tbrugato@cov.com  
www.cov.com

**COVINGTON**

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**From:** Elliott, Don  
**Sent:** Thursday, April 19, 2018 11:44 AM  
**To:** Leopold, Matt <Leopold.Matt@epa.gov>  
**Cc:** Raburn, Janice <Janice.Raburn@bp.com>; Baptist, Erik <Baptist.Erik@epa.gov>; Gunasekara, Mandy <Gunasekara.Mandy@epa.gov>; Wehrum, Bill <Wehrum.Bill@epa.gov>; Stout, Robert <Robert.Stout@bp.com>; Stutz, Rachel <Rachel.Stutz@bp.com>; Brugato, Thomas <tbrugato@cov.com>; Guzy, Gary <GGuzy@cov.com>; Long, Robert <rlong@cov.com>  
**Subject:** Re: Thank you and BP letter to EPA

Matt, Bill, Erik, and Mandy,

Following up on Mr. Sparkman's letter about BP's concerns about the broad-based exemptions of small refiners from the RFS that EPA has issued recently, I wanted to call to your attention a relevant case involving one of our favorite topics: *Chevron* deference and exceptions to same. The case is the Supreme Court's decision in *MCI Telecomm. Corp. v.*

AT&T, 512 US 218 (1994), <https://supreme.justia.com/cases/federal/us/512/218/case.html> . It strongly suggests that attempts to “even substantially” de-regulate the small refiner segment from the RFS would be illegal, as well as that a competitor not so favored has standing to challenge wholesale exemption of competitors from requirement that still apply to it.

In the *MCI v. AT&T* case, the statute required communications common carriers to file tariffs, but authorized the FCC to “modify any requirement” of same. 47 U.S.C. §203(b)(2). The FCC attempted to use its modification authority to make tariff filing optional for one part of the industry, the “non-dominate long-distance carriers.” In an early application of what is now called the “important questions” exception to *Chevron* deference, the Supreme Court held in an opinion by Justice Scalia that the agency’s interpretation of the word “modify” was not entitled to deference because the word only applied to minor matters and could not be used to make “fundamental changes” in the regulatory scheme (512 U.S. at 228) or to “introduc[e] ... a whole new regime of regulation ... [that] is not the one that Congress established.” (512 U.S. at 234).

In words that clearly resonate with the numerous exemptions that EPA has recently granted from the RFS, the Court went on to state that “[i]t is highly unlikely that Congress would leave the determination of whether an industry will be entirely, or *even substantially*, rate-regulated to agency discretion.” (512 U.S. at 231 (emphasis supplied)).

It is clearly arguable that the numerous exemptions that EPA has already granted violate the principles of *MCI Telecomm. Corp. v. AT&T*, but certainly blanket de-regulation of the entire small refinery segment as some have advocated would do so. See also *UARG v. EPA*, 573 U.S. — (2014), <https://supreme.justia.com/cases/federal/us/573/12-1146/> (“When an agency claims to discover in a long-extant statute an unheralded power to regulate “a significant portion of the American economy,” *Brown & Williamson*, 529 U.S., at 159 , we typically greet its announcement with a measure of skepticism. We expect Congress to speak clearly if it wishes to assign to an agency decisions of vast “economic and political significance.” *Id.*, at 160 ; see also *MCI Telecommunications Corp. v. American Telephone & Telegraph Co.*, 512 U.S. 218 , 231 (1994); *Industrial Union Dept., AFL-CIO v. American Petroleum Institute*, 448 U.S. 607 , 645-646 (1980) (plurality opinion).”)

Thank you for meeting with us on Monday and for this opportunity to share my views with you on this important topic.

Don Elliott

E. Donald Elliott

**Covington & Burling LLP**

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On Apr 17, 2018, at 05:31, Leopold, Matt <[Leopold.Matt@epa.gov](mailto:Leopold.Matt@epa.gov)> wrote:

Thank you for the briefing.

Regards, Matt Leopold

Sent from my iPhone

On Apr 16, 2018, at 5:17 PM, Raburn, Janice <[Janice.Raburn@bp.com](mailto:Janice.Raburn@bp.com)> wrote:

Bill, Matt, Mandy, and Erik,

Thank you for taking the time to meet with us today and listen to BP's perspective on the RFS.

Attached is the letter I referenced during the meeting from Doug Sparkman/BP to US EPA regarding concerns with RFS small refinery exemptions. (The letter is also being delivered via FedEx to Bill Wehrum tomorrow.)

Please let me know if you have any questions for BP.

Best regards,  
Janice

***Janice K. Raburn***  
Senior Director, Fuels Regulatory Advocacy  
BP America  
1101 New York Ave NW, Suite 700  
Washington, DC 20005  
Office 202-346-8516  
Mobile: 202-210-8540  
[janice.raburn@bp.com](mailto:janice.raburn@bp.com)

<20180416 BP Letter to EPA - RFS exemptions.pdf>

## Flaws with Growth Energy's E15 RVP Waiver Arguments

### Growth Energy's Comments

Growth Energy has made two basic arguments why EPA has authority to waive the RVP requirements for E15.<sup>1</sup> More recently, Growth Energy appears to have conceded that EPA does not have this authority.<sup>2</sup>

*First*, Growth Energy has argued that the statutory language of “fuel blends containing gasoline and 10 percent denatured anhydrous ethanol” applies to E15, because 15% ethanol blends necessarily also contain 10% ethanol. Growth Energy uses the analogy of an HOV sign that says “you must have four people in your car to use high-occupancy-vehicle lanes,” arguing it would be absurd to interpret that as preventing cars with five passengers from using the lane.

*Second*, Growth Energy argues that the “deemed to comply” provision is an independent, free-standing exception to the statutory RVP limits that can apply to any blend of ethanol, not just 10% blends. *See* 42 U.S.C. § 7545(h)(4).

### Legal Flaws

Both of these arguments are legally flawed interpretations of the statutory text, which reads:

For fuel blends containing gasoline and 10 percent denatured anhydrous ethanol, the Reid vapor pressure limitation under this subsection shall be one pound per square inch (psi) greater than the applicable Reid vapor pressure limitations established under paragraph (1); *Provided, however*, That a distributor, blender, marketer, reseller, carrier, retailer, or wholesale purchaser-consumer shall be deemed to be in full compliance with the provisions of this subsection and the regulations promulgated thereunder if it can demonstrate (by showing receipt of a certification or other evidence acceptable to the Administrator) that—

(A) the gasoline portion of the blend complies with the Reid vapor pressure limitations promulgated pursuant to this subsection;

(B) the ethanol portion of the blend does not exceed its waiver condition under subsection (f)(4); and

(C) no additional alcohol or other additive has been added to increase the Reid Vapor Pressure of the ethanol portion of the blend.

42 U.S.C. § 7545(h)(4).

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<sup>1</sup> *See, e.g.*, Growth Energy Comments on RFS Standards for 2014-2016, at 50-52 (July 27, 2015), *available at* <https://www.regulations.gov/document?D=EPA-HQ-OAR-2015-0111-2604>; Growth Energy Comments on RFS Standards for 2014, at 65-66 (Jan. 28, 2014), *available at* <https://www.regulations.gov/document?D=EPA-HQ-OAR-2013-0479-5263>

<sup>2</sup> Congressional Testimony of Emily Skor, CEO (Apr. 13, 2018) (conceding that the Congressional RVP waiver “applied only to ethanol fuel blends E10 and lower and excluded ethanol blends above 10 percent”), *available at* <http://docs.house.gov/meetings/IF/IF18/20180413/108122/HHRG-115-IF18-Wstate-SkorE-20180413.pdf>

## 1. The “15% Includes 10%” Argument.

**Growth Energy’s first argument is foreclosed by the text and history of the statute.** The text expressly limits the RVP waiver to gasoline containing “10 percent” ethanol. Congress did *not* adopt the House version of this provision, which would have applied to blends containing “at least 10 percent ethanol,” but instead enacted the Senate version, which does not contain the “at least” language. *See* S. 1630 § 216 (May 23, 1990) (version that passed the House) (containing “at least 10 percent ethanol” language). Likewise, though the 1990 RVP provisions were in large part a codification of EPA’s existing RVP regulations, Congress chose not to adopt the language of EPA’s regulations that provided a higher RVP limit for blends containing “at least 9% ethanol.” 40 C.F.R. § 80.27(d)(2) (1989).<sup>3</sup>

Moreover, elsewhere in CAA provisions relating to fuels, Congress used language such as “at least” or “not less than” when it intended to set a percentage floor. For example, in the 1990 CAA amendments, Congress included a separate provision relating to reformulated gasoline, which provided that in certain areas gasoline must contain “not less than 2.7 percent oxygen by weight.” Pub. L. 100-549, § 219; *see also* 42 U.S.C. § 7554(f)(2) (“For purposes of this paragraph, the term ‘methanol’ includes any fuel which contains at least 85 percent methanol . . .”). Likewise, in a 1987 statute Congress made certain findings supporting an increase in “the quantity of motor fuels that contain at least 10 percent ethanol.” Pub. L. 100-203, § 1508(a)(6).

These other statutory provisions that expressly use the “at least” language to set a floor, and the drafting history of the 1990 CAA amendments, demonstrate that Congress limited the RVP exception to 10% blends, rather than blends containing at least 10% ethanol. Indeed, the D.C. Circuit recently rejected a similar EPA attempt to read back into the RFS statute language that Congress had intentionally omitted. *See Am. for Clean Energy v. EPA*, 864 F.3d 691, 708-09 (D.C. Cir. 2017) (comparison “with other statutory provisions related to renewable fuel” that contained the omitted language as well as “Congress’s decision to drop” that language during the drafting history “counsels against EPA’s reading . . . which in effect would add that kind of language back into the waiver provision”). Accordingly, the plain text of the statute is dispositive, as “an agency may not rewrite clear statutory terms to suit its own sense of how the statute should operate.” *Util. Air Reg. Grp. v. EPA*, 134 S. Ct. 2427, 2446 (2014).

Two additional considerations reinforce this conclusion. First, EPA itself has for decades correctly interpreted this statutory language as only applying to blends that are “between 9 and 10 percent ethanol.” 56 Fed. Reg. 24,242, 24,245 (May 29, 1991). Second, the RVP waiver for 10% ethanol blends is an exception to the general 9.0 RVP limit for gasoline. Exceptions are generally “read . . . narrowly to preserve the primary operation of the provision.” *Maracich v. Spears*, 570 U.S. 48, 60 (2013) (omission in original) (citation omitted).<sup>4</sup>

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<sup>3</sup> EPA’s regulations were proposed in 1987 and finalized in 1989 to address summertime VOC emissions. 54 Fed. Reg. 11,868 (Mar. 22, 1989). While they provided for a higher RVP limit for blends containing “at least” 9% ethanol, they required individual sampling of blends containing more than 10% ethanol, while allowing blends with “no more than 10% ethanol” to be deemed to comply with the standard if certain certification requirements were met. 40 C.F.R. § 80.27(b), 80.28(g)(6) (1989); 54 Fed. Reg. at 11,873-74. When EPA finalized those rules, it noted that it was “postponing its ultimate decision on how to treat ethanol” and would address it in the “second phase of RVP control.” 54 Fed. Reg. at 11,881. Rather than have EPA proceed without guidance, Congress enacted the 1990 CAA amendments to provide direction to EPA regarding its RVP rules. Congress largely codified EPA’s rules, but by omitting the “at least” language Congress made clear that both the 1 PSI waiver and the “deemed to comply” defense apply only to fuels containing 10% ethanol.

<sup>4</sup> Step one of the *Chevron* inquiry involves consideration of “the language and structure of the Act, its legislative history, and any applicable canons of statutory construction,” and so consideration of this canon of construction is appropriate at *Chevron* step one, as well as step two. *Cal. State Bd. of Optometry v. FTC*, 910 F.2d 976, 980 (D.C. Cir. 1990).

## 2. The “Deemed to Comply” Argument.

**Growth Energy’s second argument, focused on the “deemed to comply” portion of subsection (h)(4), is also contrary to the text and history of the statute.**

The deemed to comply provision is not a separate statutory provision, but rather part of the same subsection—indeed, the same sentence—as the RVP exemption that applies only to 10% ethanol blends. Accordingly, this argument fails for the same reasons as Growth Energy’s first argument: Congress intentionally limited that entire provision to 10% ethanol blends only, and reading the “deemed to comply” provision to apply to any ethanol blend would circumvent that fundamental legislative choice. This is confirmed by the fact that the deemed to comply mechanism in EPA’s 1989 regulations was expressly limited to 10% blends, and Congress codified that portion of the regulations, as discussed above.

Other interpretive principles also demonstrate that the “deemed to comply” provision is not a free-standing exemption that could apply to any ethanol blend. The legislative history makes clear that the “provided, however” language creates an alternative way for 10% ethanol blends to demonstrate compliance. The Senate Report noted that this provision was designed to allow blenders to “demonstrate compliance with the RVP limit by providing certification that the base gasoline is in compliance with the 9.0 lbs. psi limitation and a certification that the blended fuel meets the waiver conditions of the Clean Air Act (that is, the ethanol portion does not exceed 10 percent by volume of the final fuel).” S. Rep. No. 100-231, 100th Cong. at 149 (1987). The Senate was concerned that “[r]equiring an actual test of the volatility of this blend in every case, as EPA has proposed, would not be feasible considering the very large number of batches mixed over any period, the lack of testing facilities and time to acquire testing results.” *Id.*

Interpreting the “deemed to comply” provision in such a broad fashion is also inconsistent with 42 U.S.C. § 7545(h)(5). That provision allows states to petition for an exception to “the Reid vapor pressure limitation established by paragraph (4),” and if the petition is granted, the lower RVP limit of subsection (h)(1) applies. This reference to a single RVP limit of (h)(4) is not consistent with the notion that different ethanol blends can have different RVP limits, so long as they are in compliance with their subsection (f)(4) waivers. Moreover, the (h)(5) petition only allows the lower 9 psi limit to apply to “all fuel blends containing gasoline and 10 percent” ethanol. The fact that subsection (h)(5) applies only to 10% blends is inconsistent with an interpretation of (h)(4) that would allow (h)(4) to apply to any ethanol blend for which a (f)(4) waiver has been granted.

Interpreting the “deemed to comply” provision in this fashion would also render it an extremely broad exception to the statute: EPA would have authority to waive RVP requirements entirely for the ethanol portion of any ethanol blend. As noted above, such a reading is contrary to the principle that statutory exceptions are “read . . . narrowly to preserve the primary operation of the provision.” *Maracich*, 570 U.S. at 60.

Recognizing these flaws in the Growth Energy interpretation, EPA has for decades correctly interpreted the “deemed to comply” provision as “limited to ethanol blends which meet the minimum 9 percent requirement in the regulations and the maximum 10 percent requirement” set forth in the statute. 56 Fed. Reg. 64,704, 64,708 (Dec. 12, 1991).

Message

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**From:** Baptist, Erik [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=10FC1B085EE14C6CB61DB378356A1EB9-BAPTIST, ER]  
**Sent:** 5/2/2018 10:13:45 PM  
**To:** Orlin, David [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=aa64dad518d64c5f9801eb9bb15b7ec3-DORLIN]  
**CC:** Srinivasan, Gautam [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=d69332838210416ba51779b19025f832-GSRINIVA]; Stahle, Susan [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=b25318c6014d4fb985288e15143c8596-SSTAHLE]  
**Subject:** Re: ABFA vs. EPA on the Small Refiner Exemption

Thanks!

Sent from my iPhone

On May 2, 2018, at 10:46 AM, Orlin, David <[Orlin.David@epa.gov](mailto:Orlin.David@epa.gov)> wrote:

Erik,

We have received a copy of a complaint that the Advanced Biofuels Association say they have filed with the DC Circuit challenging EPA's new approach to granting small refinery exemptions (note that on a quick skim the complaint is not entirely clear about the basis of the action).

Because we don't have the as-filed version yet, I am not sending a "new litigation" email yet, but I wanted to flag this for you.

David Orlin  
U.S. EPA, Office of General Counsel  
(202) 564-1222

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**From:** Cohen, Janet  
**Sent:** Wednesday, May 02, 2018 10:15 AM  
**To:** Stahle, Susan <[Stahle.Susan@epa.gov](mailto:Stahle.Susan@epa.gov)>; Orlin, David <[Orlin.David@epa.gov](mailto:Orlin.David@epa.gov)>  
**Subject:** FW: Summary: ABFA vs. EPA on the Small Refiner Exemption

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**From:** Machiele, Paul  
**Sent:** Wednesday, May 02, 2018 8:22 AM  
**To:** Cohen, Janet <[cohen.janet@epa.gov](mailto:cohen.janet@epa.gov)>; Bunker, Byron <[bunker.byron@epa.gov](mailto:bunker.byron@epa.gov)>; Sutton, Tia <[sutton.tia@epa.gov](mailto:sutton.tia@epa.gov)>; Hengst, Benjamin <[Hengst.Benjamin@epa.gov](mailto:Hengst.Benjamin@epa.gov)>  
**Subject:** FW: Summary: ABFA vs. EPA on the Small Refiner Exemption

FYI

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**From:** Larry Schafer [<mailto:lschafer@playmakerstrategies.com>]  
**Sent:** Tuesday, May 01, 2018 6:48 PM  
**To:** Larry Schafer <[lschafer@playmakerstrategies.com](mailto:lschafer@playmakerstrategies.com)>  
**Subject:** Summary: ABFA vs. EPA on the Small Refiner Exemption

Today, the ABFA filed a challenge today against the EPA related to its use of the small refinery exemption.

- Petition For Review: ABFA petitions the United States Court of Appeals for the District of Columbia Circuit for review of the EPA decision to modify of lower the annual RFS volumes based on its use of the small refinery exemption.

The ABFA challenge:

1. EPA changed the threshold or the base standard of disproportionate economic hardship.
2. The change resulted in an unparalleled number of exemptions which destabilized the national renewable fuels market and was the cause of economic harm to biofuels companies and biofuel blenders.
3. Congress's goal for the RFS (the statutory goal) has been undermined by EPA.
4. EPA is the cause of the changes in the renewable fuels market because EPA was arbitrary and capricious in their implementation of the regulation/statute.
5. EPA is the cause of the changes in the renewable fuels market because EPA abused its discretion.

Legal Language: EPA's change to the threshold for demonstrating "disproportionate economic hardship" and the Agency's retroactive grant of a historically unparalleled number of exemptions has destabilized the national renewable fuels market, economically harmed ABFA's members, and has undermined Congress's goals for the RFS Program.

A change of this magnitude in the number of exemptions granted is implausible and cannot be ascribed to year-to-year changes in the renewable fuels market, but can only be attributable to a decision by EPA to modify the criteria or lower the threshold by which it evaluates and grants exemptions in a manner that is arbitrary and capricious, an abuse of discretion, and otherwise not in accordance with the law.

fyi

=====  
Larry Schafer  
Playmaker Strategies  
202.997.8072

750 Ninth Street NW  
Suite 650  
Washington DC 20001

[Lschafer@PlaymakerStrategies.com](mailto:Lschafer@PlaymakerStrategies.com)  
[www.PlaymakerStrategies.com](http://www.PlaymakerStrategies.com)

=====



<ABFA vs EPA on the Small Refiner Exemption (5-1-18).pdf>

<ABFA Wehrum Letter 5-1-18.pdf>

Message

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**From:** Atkinson, Emily [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=BB2155ADEF6A44AEA9410741F0C01D27-ATKINSON, EMILY]  
**Sent:** 3/7/2018 1:05:19 PM  
**To:** Baptist, Erik [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=10fc1b085ee14c6cb61db378356a1eb9-Baptist, Er]; Patrick, Monique [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=3f271920363c4aecbfff1e989a6dfde9b-MPATRICK]  
**Subject:** RE: Meeting with Bill

Not to worry – I've moved it to 4:30pm today but if that doesn't work we can find another spot later this week.

Emily Atkinson  
Management Analyst/Office Manager  
Immediate Office of the Assistant Administrator  
Office of Air and Radiation, USEPA  
Room 5412B, 1200 Pennsylvania Avenue NW  
Washington, DC 20460  
Voice: 202-564-1850  
Email: [atkinson.emily@epa.gov](mailto:atkinson.emily@epa.gov)

---

**From:** Baptist, Erik  
**Sent:** Tuesday, March 06, 2018 11:00 PM  
**To:** Atkinson, Emily <[Atkinson.Emily@epa.gov](mailto:Atkinson.Emily@epa.gov)>  
**Subject:** Re: Meeting with Bill

Emily,

My apologies, but Matt now has a briefing with the Administrator at this time. We will need to reschedule, unfortunately.

Erik

Sent from my iPhone

On Mar 2, 2018, at 10:32 AM, Atkinson, Emily <[Atkinson.Emily@epa.gov](mailto:Atkinson.Emily@epa.gov)> wrote:

Anytime ☺

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**From:** Baptist, Erik  
**Sent:** Friday, March 02, 2018 10:32 AM  
**To:** Atkinson, Emily <[Atkinson.Emily@epa.gov](mailto:Atkinson.Emily@epa.gov)>  
**Subject:** RE: Meeting with Bill

Thanks, Emily.

**Erik Baptist**  
Senior Deputy General Counsel  
Office of General Counsel  
U.S. Environmental Protection Agency  
1200 Pennsylvania Ave., NW

Washington, DC 20460  
(202) 564-1689  
[baptist.erik@epa.gov](mailto:baptist.erik@epa.gov)

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**From:** Atkinson, Emily  
**Sent:** Friday, March 2, 2018 10:31 AM  
**To:** Veney, Carla <[Veney.Carla@epa.gov](mailto:Veney.Carla@epa.gov)>  
**Cc:** Baptist, Erik <[Baptist.Erik@epa.gov](mailto:Baptist.Erik@epa.gov)>; Lewis, Josh <[Lewis.Josh@epa.gov](mailto:Lewis.Josh@epa.gov)>  
**Subject:** RE: Meeting with Bill

It looks like both Bill and Matt are available on Wednesday, March 7 at 9:30am so I have put a meeting on then. Carla – if this doesn't work for Matt, let me know and we can find another option.

---

**From:** Atkinson, Emily  
**Sent:** Friday, March 02, 2018 9:54 AM  
**To:** Baptist, Erik <[Baptist.Erik@epa.gov](mailto:Baptist.Erik@epa.gov)>; Lewis, Josh <[Lewis.Josh@epa.gov](mailto:Lewis.Josh@epa.gov)>  
**Cc:** Veney, Carla <[Veney.Carla@epa.gov](mailto:Veney.Carla@epa.gov)>  
**Subject:** RE: Meeting with Bill

Will do

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**From:** Baptist, Erik  
**Sent:** Friday, March 02, 2018 9:49 AM  
**To:** Atkinson, Emily <[Atkinson.Emily@epa.gov](mailto:Atkinson.Emily@epa.gov)>; Lewis, Josh <[Lewis.Josh@epa.gov](mailto:Lewis.Josh@epa.gov)>  
**Cc:** Veney, Carla <[Veney.Carla@epa.gov](mailto:Veney.Carla@epa.gov)>  
**Subject:** RE: Meeting with Bill

Early next week would be great. Thanks!

**Erik Baptist**  
Senior Deputy General Counsel  
Office of General Counsel  
U.S. Environmental Protection Agency  
1200 Pennsylvania Ave., NW  
Washington, DC 20460  
(202) 564-1689  
[baptist.erik@epa.gov](mailto:baptist.erik@epa.gov)

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**From:** Atkinson, Emily  
**Sent:** Friday, March 2, 2018 9:47 AM  
**To:** Lewis, Josh <[Lewis.Josh@epa.gov](mailto:Lewis.Josh@epa.gov)>; Baptist, Erik <[Baptist.Erik@epa.gov](mailto:Baptist.Erik@epa.gov)>  
**Cc:** Veney, Carla <[Veney.Carla@epa.gov](mailto:Veney.Carla@epa.gov)>  
**Subject:** RE: Meeting with Bill

Hi Erik,

Are you all wanting to do this today or early next week?

Emily Atkinson  
Management Analyst/Office Manager

Immediate Office of the Assistant Administrator  
Office of Air and Radiation, USEPA  
Room 5412B, 1200 Pennsylvania Avenue NW  
Washington, DC 20460  
Voice: 202-564-1850  
Email: [atkinson.emily@epa.gov](mailto:atkinson.emily@epa.gov)

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**From:** Lewis, Josh  
**Sent:** Friday, March 02, 2018 9:45 AM  
**To:** Baptist, Erik <[Baptist.Erik@epa.gov](mailto:Baptist.Erik@epa.gov)>  
**Cc:** Veney, Carla <[Veney.Carla@epa.gov](mailto:Veney.Carla@epa.gov)>; Atkinson, Emily <[Atkinson.Emily@epa.gov](mailto:Atkinson.Emily@epa.gov)>  
**Subject:** Re: Meeting with Bill

Will do. + Emily

On Mar 1, 2018, at 4:43 PM, Baptist, Erik <[Baptist.Erik@epa.gov](mailto:Baptist.Erik@epa.gov)> wrote:

Josh,

Matt would like to have a meeting with Bill regarding the RFS Small Refinery Exemption issue, on which Bill briefed the Administrator this morning. Please work with Carla to find a time that meets both of our principals' busy schedules – thanks!

**Erik Baptist**  
Senior Deputy General Counsel  
Office of General Counsel  
U.S. Environmental Protection Agency  
1200 Pennsylvania Ave., NW  
Washington, DC 20460  
(202) 564-1689  
[baptist.erik@epa.gov](mailto:baptist.erik@epa.gov)

Message

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**From:** Baptist, Erik [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=10FC1B085EE14C6CB61DB378356A1EB9-BAPTIST, ER]  
**Sent:** 1/25/2018 3:17:44 PM  
**To:** Orlin, David [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=aa64dad518d64c5f9801eb9bb15b7ec3-DORLIN]  
**Subject:** RE: RFA letter on small refinery exemption

I should also note that I did not see the RFA letter before you sent it, so please continue to send me this type of information. Thanks!

**Erik Baptist**

Senior Deputy General Counsel  
Office of General Counsel  
U.S. Environmental Protection Agency  
1200 Pennsylvania Ave., NW  
Washington, DC 20460  
(202) 564-1689  
[baptist.erik@epa.gov](mailto:baptist.erik@epa.gov)

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**From:** Baptist, Erik  
**Sent:** Thursday, January 25, 2018 9:58 AM  
**To:** Orlin, David <[Orlin.David@epa.gov](mailto:Orlin.David@epa.gov)>  
**Subject:** RE: RFA letter on small refinery exemption

Thanks, David.

**Erik Baptist**

Senior Deputy General Counsel  
Office of General Counsel  
U.S. Environmental Protection Agency  
1200 Pennsylvania Ave., NW  
Washington, DC 20460  
(202) 564-1689  
[baptist.erik@epa.gov](mailto:baptist.erik@epa.gov)

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**From:** Orlin, David  
**Sent:** Thursday, January 25, 2018 9:51 AM  
**To:** Baptist, Erik <[Baptist.Erik@epa.gov](mailto:Baptist.Erik@epa.gov)>  
**Cc:** Schwab, Justin <[Schwab.Justin@epa.gov](mailto:Schwab.Justin@epa.gov)>; Srinivasan, Gautam <[Srinivasan.Gautam@epa.gov](mailto:Srinivasan.Gautam@epa.gov)>; Dubois, Roland <[Dubois.Roland@epa.gov](mailto:Dubois.Roland@epa.gov)>; Stahle, Susan <[Stahle.Susan@epa.gov](mailto:Stahle.Susan@epa.gov)>; Li, Ryland (Shengzhi) <[Li.Ryland@epa.gov](mailto:Li.Ryland@epa.gov)>  
**Subject:** FW: RFA letter on small refinery exemption

Erik,

FYI, if you haven't seen this already, RFA sent a letter to the Administrator expressing concern about small refinery exemptions (lack of transparency, effect on the market, etc). There have also been a number of news reports lately suggesting that the volume of small refinery exemptions is increasing and that this is having an effect on RIN prices.

David Orlin  
U.S. EPA, Office of General Counsel

(202) 564-1222

Message

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**From:** Baptist, Erik [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=10FC1B085EE14C6CB61DB378356A1EB9-BAPTIST, ER]  
**Sent:** 11/29/2017 10:47:58 PM  
**To:** Dubois, Roland [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=835458b87b574ccbb1704415df8413d1-RDUBOIS]; Orlin, David [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=aa64dad518d64c5f9801eb9bb15b7ec3-DORLIN]  
**CC:** Schmidt, Lorie [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=f471d4b316f74b0591322b5c63f1d01c-Schmidt, Lorie]; Srinivasan, Gautam [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=d69332838210416ba51779b19025f832-GSRINIVA]  
**Subject:** RE: RFS Question

Many thanks, Roland!

**Erik Baptist**

Senior Deputy General Counsel  
Office of General Counsel  
U.S. Environmental Protection Agency  
1200 Pennsylvania Ave., NW  
Washington, DC 20460  
(202) 564-1689  
baptist.erik@epa.gov

---

**From:** Dubois, Roland  
**Sent:** Wednesday, November 29, 2017 5:01 PM  
**To:** Orlin, David <Orlin.David@epa.gov>; Baptist, Erik <baptist.erik@epa.gov>  
**Cc:** Schmidt, Lorie <Schmidt.Lorie@epa.gov>; Srinivasan, Gautam <Srinivasan.Gautam@epa.gov>  
**Subject:** Re: RFS Question

Sorry, I was indeed off-line. The formulae used for setting the standards for the four categories of renewable fuel are in 40 CFR 80.1405(c). Dave was essentially correct in saying the denominators end up including just the projected volumes of petroleum-based gasoline and diesel (though as a practical matter we start with projections that include renewables, and then subtract them out).. There are a few relatively minor caveats, though. First, we end up using just the volumes projected to be used in the 48 contiguous states plus Hawaii. Thus, the formulae include adjustments to subtract out volumes from Alaska and US territories, which are exempt under the statute (though Alaska and the teritoires could opt-in, as Hawaii has done). Second, we also subtract out the volume of non-renewable gasoline and diesel projected to be produced by small refineries that have received an exemption as of the date that we set the standards. (More recently this value has been zero, as we generally grant exemptions after we have set the percentage standards, and we do not go back to adjust the standards when we do.)

Please let me know if you have additional questions.

Roland

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**From:** Orlin, David  
**Sent:** Wednesday, November 29, 2017 3:39 PM

**To:** Baptist, Erik  
**Cc:** Schmidt, Lorie; Srinivasan, Gautam; Dubois, Roland  
**Subject:** RE: RFS Question

Sorry Erik (Roland may be offline due to work on the RFS RTC),

I am fairly certain (but not 100%) that the denominator for the percentage standards is only gasoline and diesel.

David Orlin  
U.S. EPA, Office of General Counsel  
(202) 564-1222

-----Original Message-----

From: Baptist, Erik  
Sent: Wednesday, November 29, 2017 3:36 PM  
To: Orlin, David <[Orlin.David@epa.gov](mailto:Orlin.David@epa.gov)>  
Cc: Schmidt, Lorie <[Schmidt.Lorie@epa.gov](mailto:Schmidt.Lorie@epa.gov)>; Srinivasan, Gautam <[Srinivasan.Gautam@epa.gov](mailto:Srinivasan.Gautam@epa.gov)>; Dubois, Roland <[Dubois.Roland@epa.gov](mailto:Dubois.Roland@epa.gov)>  
Subject: RE: RFS Question

Happy to hear your thoughts, David, until Roland responds. This may be time-sensitive.

Erik Baptist  
Senior Deputy General Counsel  
Office of General Counsel  
U.S. Environmental Protection Agency  
1200 Pennsylvania Ave., NW  
Washington, DC 20460  
(202) 564-1689  
[baptist.erik@epa.gov](mailto:baptist.erik@epa.gov)

-----Original Message-----

From: Orlin, David  
Sent: Wednesday, November 29, 2017 2:22 PM  
To: Baptist, Erik <[baptist.erik@epa.gov](mailto:baptist.erik@epa.gov)>  
Cc: Schmidt, Lorie <[Schmidt.Lorie@epa.gov](mailto:Schmidt.Lorie@epa.gov)>; Srinivasan, Gautam <[Srinivasan.Gautam@epa.gov](mailto:Srinivasan.Gautam@epa.gov)>; Dubois, Roland <[Dubois.Roland@epa.gov](mailto:Dubois.Roland@epa.gov)>  
Subject: Re: RFS Question

Hi Erik,

I am copying Roland because I could give you the answer I am pretty sure is right but I think he can give you the answer that is undoubtedly right.

David

> On Nov 29, 2017, at 2:13 PM, Baptist, Erik <[baptist.erik@epa.gov](mailto:baptist.erik@epa.gov)> wrote:

>

> David,

>

> How does EPA calculate the total transportation fuel when setting the RVOs? In other words, how do we determine what the denominator will be when calculating the annual obligations? Do we include EIA's estimate of just gasoline and diesel projections for domestic use? Or do we include biofuel projections as well?

>

> Thanks,

> Erik

>

> Sent from my iPhone



Message

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**From:** Baptist, Erik [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=10FC1B085EE14C6CB61DB378356A1EB9-BAPTIST, ER]  
**Sent:** 3/14/2018 3:28:12 PM  
**To:** Schwab, Justin [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=eed0f609c0944cc2bbdb05df3a10aadb-Schwab, Jus]; Fotouhi, David [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=febaf0d56aab43f8a9174b18218c1182-Fotouhi, Da]  
**Subject:** FW: Follow up re: ACTION - REVIEW: DUE 1PM TODAY!! Senate EPW Oversight Hearing Questions for the Record  
**Attachments:** 2018.03.13 - UPDATED DRAFT - All Pruitt QFRs 01.30.2018 - COMPLETE PROGRAM OFFICE RESPONSES.DOCX

FYI

**Erik Baptist**

Senior Deputy General Counsel  
Office of General Counsel  
U.S. Environmental Protection Agency  
1200 Pennsylvania Ave., NW  
Washington, DC 20460  
(202) 564-1689  
baptist.erik@epa.gov

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**From:** Albores, Richard  
**Sent:** Wednesday, March 14, 2018 11:28 AM  
**To:** OGC HQ ADDs <OGC\_HQ\_ADDs@epa.gov>  
**Cc:** Baptist, Erik <Baptist.Erik@epa.gov>; OGC ASSISTANTS <OGC\_ASSISTANTS@epa.gov>  
**Subject:** RE: Follow up re: ACTION - REVIEW: DUE 1PM TODAY!! Senate EPW Oversight Hearing Questions for the Record

**Please provide any show-stopper comments (e.g., legal errors) to me and Derek by 4:30pm** today so we can consolidate them for Erik/Justin/David/Marcella to consider overnight, and submit OGC's final review tomorrow.

Thanks, everyone.

R

~~~~~  
**RICHARD L. ALBORES**

Associate Deputy General Counsel \* Office of General Counsel \* U.S. EPA \* 1200 Pennsylvania Avenue, NW \* MC2310A  
\* Washington, DC 20460 \* email: [albores.richard@epa.gov](mailto:albores.richard@epa.gov) \* phone: 202.564.7102 \* mobile: 202.809.8029

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**From:** Albores, Richard  
**Sent:** Wednesday, March 14, 2018 11:12 AM  
**To:** OGC HQ ADDs <OGC\_HQ\_ADDs@epa.gov>  
**Cc:** Baptist, Erik <Baptist.Erik@epa.gov>  
**Subject:** Follow up re: ACTION - REVIEW: DUE 1PM TODAY!! Senate EPW Oversight Hearing Questions for the Record

Erik informs me that OCIR gave us until COB today, but he is asking for 24 hours to review.

R

~~~~~  
**RICHARD L. ALBORES**

Associate Deputy General Counsel \* Office of General Counsel \* U.S. EPA \* 1200 Pennsylvania Avenue, NW \* MC2310A  
\* Washington, DC 20460 \* email: [albores.richard@epa.gov](mailto:albores.richard@epa.gov) \* phone: 202.564.7102 \* mobile: 202.809.8029

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**From:** Albores, Richard

**Sent:** Wednesday, March 14, 2018 11:08 AM

**To:** OGC HQ ADDs <[OGC\\_HQ\\_ADDs@epa.gov](mailto:OGC_HQ_ADDs@epa.gov)>

**Cc:** OGC MGMT All <[OGC\\_MGMT\\_All@epa.gov](mailto:OGC_MGMT_All@epa.gov)>

**Subject:** FW: ACTION - REVIEW: DUE 1PM TODAY!! Senate EPW Oversight Hearing Questions for the Record

HELLO ADDs:

I just got these, and **I am so sorry about the turnaround time** (I had no input on it at all).

Let me know if there are any issues that need OGC IO attention, as soon as possible.

R

~~~~~  
**RICHARD L. ALBORES**

Associate Deputy General Counsel \* Office of General Counsel \* U.S. EPA \* 1200 Pennsylvania Avenue, NW \* MC2310A  
\* Washington, DC 20460 \* email: [albores.richard@epa.gov](mailto:albores.richard@epa.gov) \* phone: 202.564.7102 \* mobile: 202.809.8029

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**From:** Moody, Christina

**Sent:** Wednesday, March 14, 2018 10:55 AM

**To:** Albores, Richard <[Albores.Richard@epa.gov](mailto:Albores.Richard@epa.gov)>; Mills, Derek <[Mills.Derek@epa.gov](mailto:Mills.Derek@epa.gov)>; Lubetsky, Jonathan <[Lubetsky.Jonathan@epa.gov](mailto:Lubetsky.Jonathan@epa.gov)>; Saltman, Tamara <[Saltman.Tamara@epa.gov](mailto:Saltman.Tamara@epa.gov)>; Kelty, Diane <[Kelty.Diane@epa.gov](mailto:Kelty.Diane@epa.gov)>; Walsh, Ed <[Walsh.Ed@epa.gov](mailto:Walsh.Ed@epa.gov)>; Hanley, Adrian <[Hanley.Adrian@epa.gov](mailto:Hanley.Adrian@epa.gov)>; Hanley, Mary <[Hanley.Mary@epa.gov](mailto:Hanley.Mary@epa.gov)>; Keller, Dale <[Keller.Dale@epa.gov](mailto:Keller.Dale@epa.gov)>; Keller, Kaitlin <[keller.kaitlin@epa.gov](mailto:keller.kaitlin@epa.gov)>; Folkemer, Nathaniel <[Folkemer.Nathaniel@epa.gov](mailto:Folkemer.Nathaniel@epa.gov)>; Emmerson, Caroline <[Emmerson.Caroline@epa.gov](mailto:Emmerson.Caroline@epa.gov)>; Bartlett, Keith <[Bartlett.Keith@epa.gov](mailto:Bartlett.Keith@epa.gov)>; Grogard, Megan <[Grogard.Megan@epa.gov](mailto:Grogard.Megan@epa.gov)>; Jones-Parra, Lisa <[Jones-Parra.Lisa@epa.gov](mailto:Jones-Parra.Lisa@epa.gov)>; Martin, JohnC <[Martin.JohnC@epa.gov](mailto:Martin.JohnC@epa.gov)>; Dieu, Martin <[Dieu.Martin@epa.gov](mailto:Dieu.Martin@epa.gov)>; Harwood, Jackie <[Harwood.Jackie@epa.gov](mailto:Harwood.Jackie@epa.gov)>; Cooper, Marian <[Cooper.Marian@epa.gov](mailto:Cooper.Marian@epa.gov)>; Kime, Robin <[Kime.Robin@epa.gov](mailto:Kime.Robin@epa.gov)>; Grantham, Nancy <[Grantham.Nancy@epa.gov](mailto:Grantham.Nancy@epa.gov)>; Linkins, Samantha <[Linkins.Samantha@epa.gov](mailto:Linkins.Samantha@epa.gov)>; Peck, Gregory <[Peck.Gregory@epa.gov](mailto:Peck.Gregory@epa.gov)>; Orvin, Chris <[Orvin.Chris@epa.gov](mailto:Orvin.Chris@epa.gov)>; Naples, Eileen <[Naples.Eileen@epa.gov](mailto:Naples.Eileen@epa.gov)>  
**Cc:** Williams, Thea <[Williams.Thea@epa.gov](mailto:Williams.Thea@epa.gov)>; Gomez, Laura <[Gomez.Laura@epa.gov](mailto:Gomez.Laura@epa.gov)>; Haman, Patricia <[Haman.Patricia@epa.gov](mailto:Haman.Patricia@epa.gov)>; Kaiser, Sven-Erik <[Kaiser.Sven-Erik@epa.gov](mailto:Kaiser.Sven-Erik@epa.gov)>; Levine, Carolyn <[Levine.Carolyn@epa.gov](mailto:Levine.Carolyn@epa.gov)>; Palich, Christian <[palich.christian@epa.gov](mailto:palich.christian@epa.gov)>; Frye, Tony (Robert) <[frye.robert@epa.gov](mailto:frye.robert@epa.gov)>

**Subject:** ACTION - REVIEW: DUE 1PM TODAY!! Senate EPW Oversight Hearing Questions for the Record

Colleagues,

Attached please find the draft package of QFRs to be sent to OMB for transmission to the hill. In order to ensure concurrence of the responses, these are being routed internally for review and comment. As the responses have all been cleared by programmatic political staff, OCIR does not anticipate that there will be major changes or edits to the package.

OW – PLEASE SEE ORD PFAS RESPONSES (#9) AND HAVE IT CLEARED THROUGH YOUR POLITICAL LEADERSHIP.

We are on a tight turnaround to meet the committee's request for responses, so review time is limited to 1pm today. Please note, if we have not heard from you or your programs by that time, we will assume your concurrence and that you have no further edits/comments/concerns.

Feel free to reach out with questions.

Christina J. Moody  
US Environmental Protection Agency  
Office of Congressional Affairs & Intergovernmental Relations  
[Moody.Christina@epa.gov](mailto:Moody.Christina@epa.gov)

Message

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**From:** Fotouhi, David [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=FEBAF0D56AAB43F8A9174B18218C1182-FOTOUHI, DA]  
**Sent:** 5/15/2018 12:51:08 PM  
**To:** Leopold, Matt [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=4e5cdf09a3924dada6d322c6794cc4fa-Leopold, Ma]; Baptist, Erik [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=10fc1b085ee14c6cb61db378356a1eb9-Baptist, Er]; Schwab, Justin [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=eed0f609c0944cc2bbdb05df3a10aadb-Schwab, Jus]  
**Subject:** RE: Briefing Agenda  
**Attachments:** 2018.05.09 - Senate Budget Hearing Program Cheat Sheets.docx

As a follow-up, OCIR's full briefing paper is attached to this e-mail.

**David Fotouhi**

Deputy General Counsel  
Office of General Counsel  
U.S. Environmental Protection Agency  
Tel: +1 202.564.1976  
[fotouhi.david@epa.gov](mailto:fotouhi.david@epa.gov)

---

**From:** Fotouhi, David  
**Sent:** Tuesday, May 15, 2018 8:49 AM  
**To:** Leopold, Matt <Leopold.Matt@epa.gov>; Baptist, Erik <baptist.erik@epa.gov>; Schwab, Justin <schwab.justin@epa.gov>  
**Subject:** FW: Briefing Agenda

FYI, OCIR sent me the attached list of topics for today's prep sessions (the times listed have not been updated).

Thanks,

David

**David Fotouhi**

Deputy General Counsel  
Office of General Counsel  
U.S. Environmental Protection Agency  
Tel: +1 202.564.1976  
[fotouhi.david@epa.gov](mailto:fotouhi.david@epa.gov)

---

**From:** Palich, Christian  
**Sent:** Tuesday, May 15, 2018 8:17 AM  
**To:** Fotouhi, David <[Fotouhi.David@epa.gov](mailto:Fotouhi.David@epa.gov)>  
**Subject:** Briefing Agenda

Attached. FYI times are wrong because they've changed but topics are correct.

Christian R. Palich  
Deputy Associate Administrator  
Office of Congressional Affairs  
C: 202.306.4656

Sent from my iPhone

Message

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**From:** Beck, Nancy [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=168ECB5184AC44DE95A913297F353745-BECK, NANCY]  
**Sent:** 4/20/2018 3:42:05 PM  
**To:** Ringel, Aaron [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=1654bdc951284a6d899a418a89fb0abf-Ringel, Aar]  
**CC:** Baptist, Erik [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=10fc1b085ee14c6cb61db378356a1eb9-Baptist, Er]; Palich, Christian [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=330ad62e158d43af93fcbbece930d21a-Palich, Chr]; Feeley, Drew (Robert) [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=abae82aa36da4d3383eae19a8efa683c-Feeley, Rob]; Lyons, Troy [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=15e4881c95044ab49c6c35a0f5eef67e-Lyons, Troy]  
**Subject:** RE: Administrator's Hearing Prep - Program Office Summary Sheets for Review  
**Attachments:** 04-20-2018 - House Budget Hearing Program Cheat Sheets V6 OGC Edits.2.docx

Aaron,  
Some edits from OCSPP. Please let me know if there are questions.  
Thanks for all the work on this!

---

Nancy B. Beck, Ph.D., DABT  
Deputy Assistant Administrator, OCSPP  
P: 202-564-1273  
M: 202-731-9910  
[beck.nancy@epa.gov](mailto:beck.nancy@epa.gov)

---

**From:** Ringel, Aaron  
**Sent:** Friday, April 20, 2018 11:03 AM  
**To:** Gunasekara, Mandy <[Gunasekara.Mandy@epa.gov](mailto:Gunasekara.Mandy@epa.gov)>; Forsgren, Lee <[Forsgren.Lee@epa.gov](mailto:Forsgren.Lee@epa.gov)>; Traylor, Patrick <[traylor.patrick@epa.gov](mailto:traylor.patrick@epa.gov)>; Beck, Nancy <[Beck.Nancy@epa.gov](mailto:Beck.Nancy@epa.gov)>; Kelly, Albert <[kelly.albert@epa.gov](mailto:kelly.albert@epa.gov)>; Cook, Steven <[cook.steven@epa.gov](mailto:cook.steven@epa.gov)>; Yamada, Richard (Yujiro) <[yamada.richard@epa.gov](mailto:yamada.richard@epa.gov)>; Bolen, Brittany <[bolen.brittany@epa.gov](mailto:bolen.brittany@epa.gov)>; Burke, Marcella <[burke.marcella@epa.gov](mailto:burke.marcella@epa.gov)>  
**Cc:** Greaves, Holly <[greaves.holly@epa.gov](mailto:greaves.holly@epa.gov)>; Lyons, Troy <[lyons.troy@epa.gov](mailto:lyons.troy@epa.gov)>; Shimmin, Kaitlyn <[shimmin.kaitlyn@epa.gov](mailto:shimmin.kaitlyn@epa.gov)>; Rodrick, Christian <[rodrick.christian@epa.gov](mailto:rodrick.christian@epa.gov)>; Palich, Christian <[palich.christian@epa.gov](mailto:palich.christian@epa.gov)>; Frye, Tony (Robert) <[frye.robert@epa.gov](mailto:frye.robert@epa.gov)>; Falvo, Nicholas <[falvo.nicholas@epa.gov](mailto:falvo.nicholas@epa.gov)>; Hanson, Paige (Catherine) <[hanson.catherine@epa.gov](mailto:hanson.catherine@epa.gov)>; Feeley, Drew (Robert) <[Feeley.Drew@epa.gov](mailto:Feeley.Drew@epa.gov)>  
**Subject:** RE: Administrator's Hearing Prep - Program Office Summary Sheets for Review

All, attached is the updated version with OGC's edits. If you haven't had a moment to review please do so before noon today. We are going to be compiling the Administrators binder this afternoon and plan to give him a copy by COB today for review over the weekend.

Best,

-Aaron

---

**From:** Ringel, Aaron  
**Sent:** Thursday, April 19, 2018 4:52 PM  
**To:** Mandy Gunasekara (<[Gunasekara.Mandy@epa.gov](mailto:Gunasekara.Mandy@epa.gov)> <[Gunasekara.Mandy@epa.gov](mailto:Gunasekara.Mandy@epa.gov)>); Lee Forsgren (<[Forsgren.Lee@epa.gov](mailto:Forsgren.Lee@epa.gov)> <[Forsgren.Lee@epa.gov](mailto:Forsgren.Lee@epa.gov)>); Traylor, Patrick (<[traylor.patrick@epa.gov](mailto:traylor.patrick@epa.gov)> <[traylor.patrick@epa.gov](mailto:traylor.patrick@epa.gov)>); Beck, Nancy

<beck.nancy@epa.gov>; Kelly, Albert <kelly.albert@epa.gov>; Cook, Steven <cook.steven@epa.gov>; Yamada, Richard (Yujiro) <yamada.richard@epa.gov>; Bolen, Brittany <bolen.brittany@epa.gov>; Burke, Marcella <burke.marcella@epa.gov>

**Cc:** Greaves, Holly <greaves.holly@epa.gov>; Troy Lyons (lyons.troy@epa.gov) <lyons.troy@epa.gov>; Shimmin, Kaitlyn <shimmin.kaitlyn@epa.gov>; Christian Rodrick (Rodrick.Christian@epa.gov) <Rodrick.Christian@epa.gov>; Christian Palich (palich.christian@epa.gov) <palich.christian@epa.gov>; Tony Frye (frye.robert@epa.gov) <frye.robert@epa.gov>; Falvo, Nicholas <falvo.nicholas@epa.gov>; Hanson, Paige (Catherine) <hanson.catherine@epa.gov>; Feeley, Drew (Robert) <Feeley.Drew@epa.gov>

**Subject:** Administrator's Hearing Prep - Program Office Summary Sheets for Review

**Importance:** High

Colleagues,

Attached is a program office summary document with topics we wanted to highlight for the administrator during his hearing prep next week. This is similar to what we have prepared for his use during previous hearings and takes into account likely policy based questions we expect.

Please take a moment to review/make edits in your relevant areas. We are planning to have this finalized for Ryan's review by tomorrow so if you could return with any comments by noon on Friday it would be greatly appreciated. Please feel free to reach out if you have any questions.

Best,  
Aaron

---

**Aaron E. Ringel**

*Deputy Associate Administrator*

*Office of Congressional & Intergovernmental Relations*

*U.S. Environmental Protection Agency*

W: 202.564.4373

[Ringel.Aaron@epa.gov](mailto:Ringel.Aaron@epa.gov)

Message

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**From:** Fotouhi, David [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=FEBAF0D56AAB43F8A9174B18218C1182-FOTOUHI, DA]  
**Sent:** 4/20/2018 2:18:42 AM  
**To:** Schwab, Justin [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=eed0f609c0944cc2bbdb05df3a10aadb-Schwab, Jus]; Burke, Marcella [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=5066626ec70846439b8d3f6c35d92be8-Burke, Marc]; Baptist, Erik [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=10fc1b085ee14c6cb61db378356a1eb9-Baptist, Er]  
**CC:** Leopold, Matt [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=4e5cdf09a3924dada6d322c6794cc4fa-Leopold, Ma]  
**Subject:** RE: Administrator's Hearing Prep - Program Office Summary Sheets for Review  
**Attachments:** DF edits to 04-19-2018 - House Budget Hearing Program Cheat Sheets V5 OCIR.docx

My suggested edits and comments are tracked in the attached document. Let me know if you have any questions.

**David Fotouhi**

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U.S. Environmental Protection Agency  
Tel: +1 202.564.1976  
[fotouhi.david@epa.gov](mailto:fotouhi.david@epa.gov)

---

**From:** Schwab, Justin  
**Sent:** Thursday, April 19, 2018 5:43 PM  
**To:** Burke, Marcella <[burke.marcella@epa.gov](mailto:burke.marcella@epa.gov)>; Leopold, Matt <[Leopold.Matt@epa.gov](mailto:Leopold.Matt@epa.gov)>; Baptist, Erik <[Baptist.Erik@epa.gov](mailto:Baptist.Erik@epa.gov)>; Fotouhi, David <[Fotouhi.David@epa.gov](mailto:Fotouhi.David@epa.gov)>  
**Subject:** RE: Administrator's Hearing Prep - Program Office Summary Sheets for Review

Comments on my issues attached.

---

**From:** Burke, Marcella  
**Sent:** Thursday, April 19, 2018 5:06 PM  
**To:** Leopold, Matt <[Leopold.Matt@epa.gov](mailto:Leopold.Matt@epa.gov)>; Baptist, Erik <[Baptist.Erik@epa.gov](mailto:Baptist.Erik@epa.gov)>; Schwab, Justin <[Schwab.Justin@epa.gov](mailto:Schwab.Justin@epa.gov)>; Fotouhi, David <[Fotouhi.David@epa.gov](mailto:Fotouhi.David@epa.gov)>  
**Subject:** Fwd: Administrator's Hearing Prep - Program Office Summary Sheets for Review

Please send any comments before noon tomorrow--thank you.

Sent from my iPhone

Begin forwarded message:

**From:** "Ringel, Aaron" <[ringel.aaron@epa.gov](mailto:ringel.aaron@epa.gov)>  
**Date:** April 19, 2018 at 4:52:19 PM EDT  
**To:** "Gunasekara, Mandy" <[Gunasekara.Mandy@epa.gov](mailto:Gunasekara.Mandy@epa.gov)>, "Forsgren, Lee" <[Forsgren.Lee@epa.gov](mailto:Forsgren.Lee@epa.gov)>, "Traylor, Patrick" <[traylor.patrick@epa.gov](mailto:traylor.patrick@epa.gov)>, "Beck, Nancy" <[Beck.Nancy@epa.gov](mailto:Beck.Nancy@epa.gov)>, "Kelly, Albert" <[kelly.albert@epa.gov](mailto:kelly.albert@epa.gov)>, "Cook, Steven" <[cook.steven@epa.gov](mailto:cook.steven@epa.gov)>, "Yamada, Richard (Yujiro)" <[yamada.richard@epa.gov](mailto:yamada.richard@epa.gov)>, "Bolen, Brittany" <[bolen.brittany@epa.gov](mailto:bolen.brittany@epa.gov)>, "Burke, Marcella" <[burke.marcella@epa.gov](mailto:burke.marcella@epa.gov)>  
**Cc:** "Greaves, Holly" <[greaves.holly@epa.gov](mailto:greaves.holly@epa.gov)>, "Lyons, Troy" <[lyons.troy@epa.gov](mailto:lyons.troy@epa.gov)>, "Shimmin, Kaitlyn"



<shimmin.kaitlyn@epa.gov>, "Rodrick, Christian" <rodrick.christian@epa.gov>, "Palich, Christian" <palich.christian@epa.gov>, "Frye, Tony (Robert)" <frye.robert@epa.gov>, "Falvo, Nicholas" <falvo.nicholas@epa.gov>, "Hanson, Paige (Catherine)" <hanson.catherine@epa.gov>, "Feeley, Drew (Robert)" <Feeley.Drew@epa.gov>

**Subject: Administrator's Hearing Prep - Program Office Summary Sheets for Review**

Colleagues,

Attached is a program office summary document with topics we wanted to highlight for the administrator during his hearing prep next week. This is similar to what we have prepared for his use during previous hearings and takes into account likely policy based questions we expect.

Please take a moment to review/make edits in your relevant areas. We are planning to have this finalized for Ryan's review by tomorrow so if you could return with any comments by noon on Friday it would be greatly appreciated. Please feel free to reach out if you have any questions.

Best,  
Aaron

---

**Aaron E. Ringel**

*Deputy Associate Administrator  
Office of Congressional & Intergovernmental Relations  
U.S. Environmental Protection Agency*

W: 202.564.4373

[Ringel.Aaron@epa.gov](mailto:Ringel.Aaron@epa.gov)

ONE HUNDRED FIFTEENTH CONGRESS  
**Congress of the United States**  
**House of Representatives**  
COMMITTEE ON ENERGY AND COMMERCE  
2125 RAYBURN HOUSE OFFICE BUILDING  
WASHINGTON, DC 20515-6115  
Majority (202) 225-2927  
Minority (202) 225-3641

January 19, 2017

The Honorable Scott Pruitt  
Administrator  
U.S. Environmental Protection Agency  
1200 Pennsylvania Avenue, N.W.  
Washington, DC 20460

Dear Administrator Pruitt:

Thank you for appearing before the Subcommittee on Environment on December 7, 2017, to testify at the hearing entitled "The Mission of the U.S. Environmental Protection Agency."

Pursuant to the Rules of the Committee on Energy and Commerce, the hearing record remains open for ten business days to permit Members to submit additional questions for the record, which are attached. The format of your responses to these questions should be as follows: (1) the name of the Member whose question you are addressing, (2) the complete text of the question you are addressing in bold, and (3) your answer to that question in plain text.

To facilitate the printing of the hearing record, please respond to these questions with a transmittal letter by the close of business on Friday, February 2, 2018. Your responses should be mailed to Allie Bury, Legislative Clerk, Committee on Energy and Commerce, 2125 Rayburn House Office Building, Washington, DC 20515 and e-mailed in Word format to [Allie.Bury@mail.house.gov](mailto:Allie.Bury@mail.house.gov).

Thank you again for your time and effort preparing and delivering testimony before the Subcommittee.

Sincerely,



John Shimkus  
Chairman  
Subcommittee on Environment

cc: The Honorable Paul Tonko, Ranking Member, Subcommittee on Environment

Attachment

## Attachment—Additional Questions for the Record

### The Honorable John Shimkus

1. This committee was instrumental in developing the Electronic Hazardous Waste Manifest Act of 2012, which requires EPA to replace the outdated paper documents with a new electronic system for tracking all hazardous waste shipments.
  - a. What are some of the other ways the hazardous waste program could be improved, particularly in terms of the elimination of duplicative and unnecessary regulations?
  - b. Is EPA pursuing any of these efforts?
2. The previous Administration attempted to regulate farms and agricultural processors by saying that its 2009 Endangerment Finding regulated “biogenic” CO2 from agricultural crops. I understand The Endangerment Finding, however, never mentions the word “biogenic.”
  - a. Do you intend to look at this interpretation of the Endangerment Finding?
  - b. If so, would you view it in terms of whether EPA overreached to regulate natural CO2 from U.S. farms?
3. On October 17, 2017, EPA's Air Enforcement Division sent a letter to the Ozone Transport Commission stating that the agency "agrees that the 1986 policy on aftermarket catalytic converter emissions is outdated."
  - a. What steps are being taken to update this policy?
  - b. Does the Agency have a timeline for this process?
4. There has been concern that EPA’s regional offices enforce their authority differently from each other and Headquarters guidance. Do you intend to bring alignment among EPA Headquarters and the Regions?
5. The Administration’s budget request zeroed out the funding to the Department of Justice for superfund-related enforcement activities and for cost recovery efforts for the superfund program. If the goal is to get more sites cleaned up and to speed up cleanups, that seems like an odd budget request since DOJ brings money back into the federal coffers from superfund polluters – can you explain to us why the president's budget request would zero out those funds?

6. On December 1, 2017 EPA issued a decision not to do a final rule regarding financial assurance requirements for the hard rock mining sector. Can you tell us what the status is of the 108(b) rule making for the other industry sectors that are next in line [chemical manufacturing, petroleum and coal products manufacturing, and the electric power generation, transmission, and distribution]?
7. EPA announced that it could be a year before it can start cleanup of the San Jacinto River Waste Pits, which sprung a leak during Hurricane Harvey flooding. Is that because EPA officials are in the process of negotiating with responsible parties to pay for the \$115 million project?
  - a. Does EPA have a plan to address the leaking cap in the meantime?
  - b. It was also announced that once the cleanup process starts, it is expected to take about 27 months. What safeguards will EPA put in place to ensure that more damage to the cap does not occur before the removal can be completed?
8. Administrator Pruitt, in October you announced a new policy of the Agency regarding the use of settlements to circumvent the regulatory process and indicated that EPA “will no longer go behind closed doors and use consent decrees and settlement agreements to resolve lawsuits filed against the Agency.” The issue of “sue and settle” and the ability of special interest groups to use deadline lawsuits to force EPA to issue regulations that advance their priorities on a specified timeframe has long been a concern of this Subcommittee.
  - a. As you noted in your statement about the new policy, “‘sue and settle’ cases establish Agency obligations without participation by states and/or the regulated community; foreclose meaningful public participation in rulemaking; effectively force the Agency to reach certain regulatory outcomes; and, cost the American taxpayer millions of dollars.” Has the Agency started implementing the changes?
  - b. There has been some pushback on your sue and settle proposal. How do you respond to the people, many of whom are former EPA attorneys, who say that the policy “discourages settlements when they would have been appropriate and increases agency costs?”
  - c. How do you differentiate between the negative aspects of sue and settle [lack of transparency etc...] and the positive? For example, regulated entities and EPA often reach agreement on a cleanup or enforcement issue, enter a settlement, and then file a lawsuit seeking court approval and enforcement of the settlement. Is your new “sue and settle” policy agency-wide? And is it a mandate to not use sue and settle in ways that shorten the administrative time it takes to get a cleanup or resolution of an enforcement action?
9. When was the last time EPA listed a Federal facility on the National Priorities List (NPL)?

- a. If a site scores high enough to rank on the Hazard Ranking System (HRS), will EPA list the Federal facility on the NPL?
  - b. How does OMB factor into the decision about whether to list a Federal facility on the NPL?
  - c. What if a Federal facility ranks on the HRS and the State in which it is located requests that the Federal facility be added to the NPL, will EPA list the Federal facility?
10. How do you reconcile Executive Order 12580 when it gives the polluter who is also the person paying for the cleanup, the right to make all of the decisions with respect to the remedy with no oversight from EPA?
11. How will EPA build consistency into how the Regions manage CERCLA cleanups?
12. What is the timing for the issuance of the Record of Decision for the Westlake Landfill in Bridgeton, Missouri?
13. The Superfund Task Force conducted a 30-day review of the program and released 42 recommendations in July. The Task Force reemphasized long accepted concepts that are necessary to ensure remedies are consistent nationwide, data-driven, and efficient – such as adaptive management, early actions, technical oversight, and strengthening partnerships with stakeholders. You also revised the delegation of authority procedures to require that remedies potentially totaling more than \$50 million must receive approval from the Administrator, which will help promote regional accountability.
- a. How have you been implementing the recommendations of the Task Force at sites with existing Records of Decision and how will you implement the recommendations with new cleanups?
  - b. How will EPA ensure that Regional offices closely follow the principles set forth by the Agency's 2005 Sediment Guidance and the National Contingency Plan?
  - b. Since many of the Task Force's recommendations require further action, what is your timeline and plan for next steps?

**The Honorable David McKinley**

- 1. Mr. Administrator - when EPA finalized the “coal ash” regulations, they adopted in the self-implementing rule a “one-size-fits-all” approach that does not allow for the consideration of site specific, risk-based factors.

I appreciate that EPA has committed to reconsider elements of the rule.

The timing of these revisions is critical to ensure that the power sector has regulatory certainty.

- a. Can you provide an update on how this process is going?
2. As you know, a federal district court ordered EPA in January this year to begin to implement section 321 of the clean air act. This provision from the late 1970s provides that the administrator “shall conduct continuing evaluation of potential loss or shifts in employment...”
  - a. What are your plans for implementing this provision? What can you tell us about your timeline?
  - b. Will you work with me to identify whether statutory changes will help make for a more useful and transparent section 321 program?
3. Small refineries have an inherent hardship in complying with the renewable fuel standards. These refineries do not have the ability to pass the cost on to their customers. It would put them at a competitive disadvantage to do so.

Congress has clearly stated its intent regarding this.

- a. What is the agency doing to address streamlining and improving the hardship petition process?
4. Mr. Administrator – we understand that one of your objectives at EPA is a revised federalism, including providing the states with a greater partnership role with EPA in administering and implementing environmental laws in the respective states. Congress’ recent enactment of the win act – which allows the states to implement the federal coal combustion residual – or “coal ash” – rules in lieu of the federal rule – is a perfect example of this philosophy and provides your administration with the opportunity to put this goal into action.

Unfortunately, however, we have heard from some of the states that EPA has been slow in reviewing and approving state program applications to operate the ccr rule in lieu of EPA. Indeed, we understand that not a *single* state application has been deemed complete by EPA, which is necessary to allow for the formal review process to begin.

- a. Can we get some assurances from you that the agency will accelerate this process?
5. The EPA's Air Enforcement Division sent an October 17 letter to the Ozone Transport Commission stating it "agrees that the 1986 [aftermarket catalytic converter emissions] policy is outdated." We encourage you to look into this issue. U.S. manufacturing jobs are threatened and U.S. consumers are already being harmed by this outdated policy.

Are you aware of how U.S. manufacturers of aftermarket catalytic converters are being severely impacted by an outdated EPA policy guidance that guides the industry?”

## The Honorable Marsha Blackburn

1. An Obama-EPA rule from 2016 would have required glider kit vehicles – which are made with *old* engines, and are not new vehicles – to comply with Phase 2 EPA greenhouse gas emission standards that were targeted solely for *new* vehicles and engines. This rule would have had a devastating impact on the state of Tennessee, resulting in a loss of \$512 million-dollars in economic output and a loss of 947 jobs. The rule would have been particularly harmful for small businesses that create and sell refurbished trucks using glider kits, providing an alternative in the medium and heavy-duty truck market that is 25% less expensive than buying a new truck. Mr. Pruitt, I want to thank you on behalf of the hundreds of Tennesseans who still have their jobs because of your common-sense action to reverse the previous administration’s meritless and radical position.
  - a. Following up on that, do you agree that the needs of small business job creators should be taken into account when setting regulations that impact industries dominated by small businesses?
  - b. What can we do as a legislative body to ensure future abuses such as these do not take place again?
  - c. Can you discuss some of your efforts to reconsider regulations that pose an undue burden on small businesses?
2. In accordance with the President’s Executive Order 13777, your Agency began a process of reviewing EPA regulations in need of reform because they eliminate or inhibit job creation, are outdated, ineffective, or unnecessary, impose costs that exceed benefits, or create legal inconsistencies.
  - a. What is the status of this review?
  - b. What are your planned next steps?
  - c. What timeline do you envision for implementing the recommendations?
3. On November 30, 2017, EPA finalized volume requirements under the Renewable Fuel Standard (RFS) program for 2018 for cellulosic biofuel, biomass-based diesel, advanced biofuel, and total renewable fuel, and biomass-based diesel for 2019. The 2007 law shaping the RFS required EPA to study and report to Congress on whether the RFS will adversely impact air quality. To date, EPA has never completed that study. EPA was also required to report to Congress on the RFS’ impacts to the environment and resource conservation every three years. To date, EPA has issued only one report – in December 2011. Administrator Pruitt, when can Congress expect the EPA to comply with the law and provide the necessary studies?

### **The Honorable Gregg Harper**

1. Mississippi is home to a significant forest products industry. The EPA, under the Obama Administration, drafted and imposed a wood products procurement regulation that allows only for Forest Stewardship Council – or FSC – certified products to be purchased by the government, which bars the purchase of products certified by other credible forest certification standards, such as the American Tree Farm System (ATFS) or Sustainable Forestry Initiative. This regulation, which is now under review, excludes a significant number of family forest owners in the United States with homegrown products certified by other reputable standards. 1) Could you please provide a status update on the current review process? 2) What potential changes can be made to improve this policy that currently puts American forest owners at a disadvantage?
2. In the 113<sup>th</sup> Congress, EPA was provided discretion over the allocation of approximately \$12.7 million in annually appropriated EPA technical assistance funding. The EPA used the discretion to eliminate the two full-time circuit rider technical assistance positions in Mississippi and other states. In response to concern raised by my rural and small community water constituents, I introduced legislation to reauthorize and direct the technical assistance funding to where it is most helpful. Senator Wicker’s companion bill was signed into law in 2015. I appreciate EPA’s July 25, 2017, response to a June 9, 2017, Senate letter in which EPA committed to following the intent of the Grassroots Rural and Small Community Water Systems Assistance Act (PL 114-98). 1) Could you please provide an update on implementation of the law and the possibility of the two-full time circuit rider technical assistance positions being re-established in Mississippi?

### **The Honorable Bill Johnson**

1. As is true in a lot of areas around the country, job creators in my district are having a difficult time obtaining New Source Review air permits in order to build or upgrade manufacturing facilities or power plants, which is hurting our local economy and employment opportunities. And, as the recent DOE report on electricity markets and grid reliability further emphasizes, “NSR creates an unnecessary burden that discourages... investments in efficiency because of the additional expenditures and delays associated with the permitting process”.
  - a. Do you agree that issuing New Source Review permits takes too long and is unnecessarily complex?
  - b. What is EPA doing to assess the impact of current NSR review requirements on decisions to modernize facilities and power plants?



- c. What reforms may EPA make administratively to improve the New Source Review permitting program so that we can continue to improve air quality and achieve economic growth?

**The Honorable Kevin Cramer**

1. After 2022, EPA is required to set volumes for total renewable fuel, advanced biofuel, cellulosic biofuel, and biomass based diesel. The assumption is the total renewable fuel volume would contain some amount of conventional biofuel. The statute, however, does not set a minimum amount for conventional biofuel because it does not specify a minimum volume for the total renewable fuel. Thus, EPA could set the total renewable fuel volume as the same as the advanced biofuel volume.
  - a. Does the current statute have a specific requirements for corn-based ethanol until 2022?
  - b. Does the statute require a minimum volume of total renewable fuel for each year following 2022?
  - c. Is it your belief that after 2022, the RFS gives significant preference to advanced biofuels over conventional corn-based ethanol?
2. The implied mandate for corn-based ethanol is set at 15 billion gallons until 2022. As the statute is written today, do you view this 15 billion gallons as a ceiling or a floor?
  - a. If floor: What in the statute leads you to believe the RFS will require more than 15 billion gallons of corn-based ethanol?
3. The prior Administration proposed the Renewable Enhancement and Growth Support (REGS) Rule in 2016 and took comment on the potential for capturing RINS from renewable electricity used to charge electric vehicles.
  - a. Where does this proposal currently stand?
  - b. Is the EPA planning to continue to finalize the REGS Rule?
4. A number of ethanol producers in my state have talked to me at length about the benefits of high-octane fuels which are said to provide substantial engine efficiency benefits. They indicated a wealth of information has been provided to the EPA in support of such a fuel with 30 percent ethanol.
  - a. Can automakers now certify their engines on these fuels?
  - b. If not, why not? If so, what is the process?

### **The Honorable Tim Walberg**

1. Administrator Pruitt, one of the priorities of this Subcommittee has long been to, where appropriate, give more authority to the states and it has been suggested that there are aspects of the Superfund program that would be better handled by the states.
  - a. What are your thoughts on delegating portions of the CERCLA cleanup authority to states that can demonstrate the ability to conduct certain superfund cleanups?
2. At present, there are no standard EPA methods for analyzing PFAS in environmental media, but EPA officials have stated the agency will have draft methods for water and solids by fall 2017. For the purpose of Michigan's continued engagement on this critical issue, as well as the betterment of EPA's developing approach to addressing PFAS nationwide, when do you expect these methodologies will be complete?
3. The EPA issued a drinking water health advisory for PFAS in May 2016, however, the advisory is non-enforceable and non-regulatory. Do you foresee changes to EPA's role in regulating PFAS contamination at the national level?
4. In the Motor Fuels Act of 1988 Congress established a variety of alternate fuel incentives to be used by NHTSA in the administration of the CAFE fuel economy regulations. EPA originally used the same statutory incentives as NHTSA therefore vehicle emissions and fuel economy incentives were harmonized. But in 2012, under the previous administration, EPA diverged from this harmonization by favoring electric vehicles over other alternative fuel vehicles thereby nullifying Congressional intent. Do you think it would be good policy for EPA to return to its previous approach and harmonizing its emissions incentives with NHTSA's fuel economy incentives?

### **The Honorable Buddy Carter**

1. The EPA issued a review of the Phase 2 Greenhouse Gas Rule for Medium and Heavy-Duty Trucks and in November the EPA issued a statement on the review of glider kits. However, we haven't seen any announcements about progress with truck trailers. Are you currently reviewing trailers as part of the rule and if so, what is the status? Please provide an update on the rulemaking process and any progress that has been made.
2. Which recommendations from the Super Fund Task Force have been implemented?
3. The EPA recently announced the full or partial removal of Superfund sites from the National Priorities List. How many cleanups will the EPA pursue in 2018 and what will those be?
4. In June, the EPA announced an interim remedy for the Superfund site located at Terry Creek in my district. What is the status of that effort?
5. This committee has been looking to make sensible reforms to the program. Are there any legislative actions that this committee would need to take to aid in reforming the program?

### **The Honorable Michael Burgess**

1. In my State of Texas, we have become too familiar with the EPA making examples of a few people to scare everyone else into compliance. Could you explain why you are intentionally moving away from heavy handed regulatory treatment and moving more toward building partnerships with States and industry to improve the environment?
2. Some of your critics view the EPA as if it's a factory; where success is measured by the quantity of rules issued, grants passed out, or enforcement cases brought. Rarely do people size up EPA by compliance achieved or improvements in the environment. What goals, budgetary or otherwise, are you setting for individual programs and what metrics are being used to measure progress or success of an office or program?
3. I'd also like to touch on the spill at the Gold King Mine. Shortly after the spill occurred there, I visited the mine to observe the impact myself and was shocked by the severe the damage was at that time. Could you please provide me an update on the situation there and the status of the claims brought by the victims?
4. EPA's authority to use the Title 42 hiring authority derives from an appropriations rider and not legislation originating from either the House Energy & Commerce or Senate Environment & Public Works Committees. Does the EPA intend to continue to use Title 42 to hire and pay new and existing employees under this authority?
  - a. Does EPA intend to formally ask the authorizing committees for special hiring authority or will it continue to base its authority on the appropriations rider?
  - b. Has EPA ever formally or informally requested such authority from the authorizing committees? If so, when?
  - c. Has the EPA ever proposed language similar to the Title 42 hiring authority be included in any of its authorizing legislation?
  - d. Does EPA intend to continue to request that the Appropriations Committee include this rider in future appropriations legislation?
  - e. Does EPA intend to ask the Appropriations Committee for any increase to the currently allowed number of employees it may pay under Title 42?

### **The Honorable Frank Pallone**

#### **Superfund:**

During the hearing, you suggested that you proposed cutting the budget for Superfund cleanups because more money is not needed. You also said that there are very few orphan sites, meaning sites that will require public cleanup funds. However, in 2015, the Government Accountability Office found that as federal funding for cleanups has declined, the number of construction

completions and remedial action completion declined while the number of National Priority List sites remained constant. In other words, less money buys fewer needed cleanups.

1. How many sites, exactly, on the National Priority List require public cleanup funds?

### **Environmental Justice:**

Since the issuance of Executive Order 12898 in 1994, EPA has been required to incorporate the goal of environmental justice into its mission. As part of that executive order, and in keeping with Title VI of the Civil Rights Act of 1964, EPA is required to ensure all of its activities that affect human health and the environment do not directly or indirectly discriminate on the basis of race, color, or national origin.

2. What are you doing to ensure that EPA's response and recovery efforts in Puerto Rico and the U.S. Virgin Islands comply with the Executive Order on environmental justice and the Civil Rights Act?

Environmental justice is also a serious concern in the Agency's response to Hurricane Harvey because of disparities between communities affected by that storm.

3. What have you been doing to ensure that EPA's response and recovery efforts in Texas comply with the Executive Order on environmental justice and the Civil Rights Act?
4. What direction, if any, have you given to your Regional Administrators and other regional staff with regard to ensuring environmental justice in EPA's hurricane response? Please provide any memoranda or email correspondence you or your staff have sent to regional staff on the subject of environmental justice and hurricane response.
5. Who on your staff is tasked with coordinating response efforts across the regions to ensure equal treatment for the people of Puerto Rico and the U.S. Virgin Islands?

Since assuming your position as Administrator, you have delayed or abandoned numerous rules and regulations that would have protected vulnerable communities.

6. Do you believe that your decision to abandon EPA's proposed ban of the dangerous pesticide chlorpyrifos complies with the Executive Order on environmental justice and the Civil Rights Act?
7. Do you believe that your decision to delay the important amendments to the Risk Management Planning program complies with the Executive Order on environmental justice and the Civil Rights Act?
8. Do you believe that your actions delaying notifying communities that are out of attainment with the 2015 ozone National Ambient Air Quality Standard complies with the Executive Order on environmental justice and the Civil Rights Act?

9. Do you believe that your decision to repeal the Clean Power Plan complies with the Executive Order on environmental justice and the Civil Rights Act?
10. Do you believe that your decision to delay revisions to the Lead and Copper Rule complies with the Executive Order on environmental justice and the Civil Rights Act?

#### **Management of Toxic Pesticides:**

11. Documents reveal that Monsanto employees may have ghostwritten scientific papers on glyphosate, including papers published in the journal *Regulatory Toxicology and Pharmacology*, which has an editorial board populated by industry scientists, lawyers and consultants with clear financial ties to the chemical industry. Has EPA relied on those studies in its evaluation of glyphosate?
12. Did EPA rely on studies from that journal in its decision to deny the petition to ban chlorpyrifos?
13. In 2015, the Food and Drug Administration (FDA) agreed with recommendations from GAO<sup>1</sup> that glyphosate monitoring should be done, but subsequently suspended its efforts to conduct that monitoring.<sup>2</sup> Documents suggest that this decision may have been made under pressure from an EPA employee working with Monsanto. Please provide any email or other correspondence between EPA employees and FDA employees regarding glyphosate monitoring.
14. EPA's March 30 decision on chlorpyrifos will allow continued use of this dangerous pesticide on golf courses. Did trade associations representing the Trump Organization golf courses, or lobbyists who represent the Trump Organization, communicate with EPA, the White House, or the Trump transition team regarding the March 30 decision or chlorpyrifos in general?

#### **Transparency:**

Nearly thirty-five years ago, in his landmark "Fishbowl Memo," Administrator Ruckelshaus announced that he would release his appointment calendar on a weekly basis, and he directed the Deputy Administrator and all Assistant Administrators, Associate Administrators, Regional Administrators, and Staff Office Directors to do the same. Administrator Ruckelshaus emphasized that "EPA will not accord privileged status to any special interest group" and that the public should be "fully aware of [top officials'] contacts with interested persons." In the intervening decades, Administrators serving under both Democratic and Republican Administrations have upheld this

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<sup>1</sup> U.S. Government Accountability Office, "Food Safety: FDA and USDA Should Strengthen Pesticide Residue Monitoring Programs and Further Disclose Monitoring Limitations" (Nov. 6, 2014).

<sup>2</sup> Gillam, C. *FDA Suspends Testing for Glyphosate Residues in Food* (Nov. 11, 2016) ([http://www.huffingtonpost.com/carey-gillam/fda-suspends-glyphosate-r\\_b\\_12913458.html](http://www.huffingtonpost.com/carey-gillam/fda-suspends-glyphosate-r_b_12913458.html))

practice. But your senior management team has yet to release its calendars, undermining agency transparency and raising questions about who may be accessing and influencing top EPA officials. EPA has recently provided the public with a “summary” of your calendar, and provided some heavily redacted records of your calendar through March 31. But the agency still has not released the actual records of your daily calendars since March, despite numerous FOIA requests for them.

15. Will you commit to making your schedule public on a regular basis, so that Congress, the press, and ordinary Americans can see who you are meeting with?
16. Will you commit to directing your senior officials to release their calendars on a regular basis?

We are also concerned about delays in EPA’s response to FOIA requests under your administration. EPA’s failure to meet the deadlines specified in the Freedom of Information Act results in legal violations, which then subject EPA to repeated lawsuits.

17. Given the legal expenses and waste of resources caused by EPA’s failure to comply with FOIA deadlines, do you agree that EPA should streamline the review process for release of documents to eliminate any unnecessary steps, such as multiple levels of document review?
18. Do you think it is appropriate for political appointees and advisors to hold up the release of documents for further review, even when documents have already been determined to be public documents not subject to FOIA exemptions by FOIA officers and FOIA attorney advisors?
19. Why would it be necessary for the documents to undergo a political review if they are public documents under the law?
20. It appears that EPA has now adopted a policy of responding to FOIA requests based only or primarily on the date of the request, regardless of the type of information requested, the simplicity of the request, or the relevance of the information to the public. Is that correct?
21. If not, please describe in detail the criteria that EPA is now using to prioritize processing FOIA requests?
22. Given EPA’s large backlog, under your current approach, how long will it be before you respond to a substantial number of requests regarding your tenure and release documents generated during your tenure (besides those documents that EPA releases when a lawsuit is filed)? Please provide an estimate in weeks, months, or years.
23. Will you establish a policy of responding to new FOIA requests on an ongoing basis, rather than relegating them to the back of the line and without waiting to be sued on each request?

It has been reported that you and other political appointees have directed staff to avoid creating public records that could be subject to FOIA requests, such as directing staff to provide internal policy decisions orally instead of by electronic mail or directing staff not to take notes in meetings.

24. Do you agree that EPA is required to create and maintain records that document the formulation of the agency's decisions, and the people and matters dealt with by the agency, so that proper scrutiny by Congress and other agencies is possible?
25. Have you or other political employees provided any direction to staff that could discourage them from creating such records?

**Contract with Definers Public Affairs:**

On the day you testified before Energy and Commerce, EPA entered into a no-bid contract with Definers Public Affairs to provide “news analysis and brief service focusing on EPA work and other topics of interest to EPA.”<sup>3</sup> The awarding of this contract without full and open competition to a company with no apparent experience in providing these services to a Federal agency is concerning, as are the political lobbying activities of the firm. Though Definers recently terminated the contract with EPA, we have outstanding questions regarding EPA’s selection of Definers and whether the Contract was an appropriate use of taxpayer dollars.

26. What was your role in selecting Definers for this award? In addition to yourself, which EPA political appointees were involved in selecting Definers? Please provide all communications between yourself and all other EPA political appointees and any Definers representative between February 17, 2017 and December 7, 2017.
27. Were you or other EPA political appointees aware of the FOIA requests filed by Definers employees against individual agency employees before the contract was awarded? Were those FOIA requests considered in the identification of Definers as a potential candidate for the Contract, or a factor in ultimately awarding the Contract?
28. Was Definers, AmericaRising, or any of their agents involved in creating or funding the website ConfirmPruitt.com?
29. Were you, any of your agents, or any current EPA employees involved in generating or reviewing the content of the website ConfirmPruitt.com, or providing or raising funds for the site? Did any representative of Definers, America Rising, or America Rising Squared generate or review content for the website?
30. What work did Definers perform for EPA pursuant to the contract? Please provide a list of all services performed by Definers for EPA during the duration of the contract, including the date, the service provided, time required, the itemized cost, and the name of the Definers employee who performed the work. What was the total amount of taxpayer funds EPA paid Definers during the duration of the contract? Please provide copies of all communications between EPA and any representative of Definers, America Rising, America Rising Squared, and the Need to Know Network during calendar year 2017.

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<sup>3</sup> EPA Award Number EP18H000025 to Definers Corps. (Dec. 7, 2017)

31. On December 10, the New York Times published an article identifying an alarming decrease in enforcement actions brought by the EPA during your administration.<sup>4</sup> EPA issued an unusual press release in response, which has since been removed from the agency website but continues to be cited by conservative media sources. What role did Definers play in the agency's response to the December 10<sup>th</sup> article? Provide any correspondence between EPA and any representative of Definers, America Rising, America Rising Squared, and the Need to Know Network regarding the December 10<sup>th</sup> article.
32. What firewalls were in place in the contract with Definers Corp to ensure that Definers firewalled the media monitoring services provided under the Contract from its services that would violate the Publicity or Propoganda Prohibition and Anti-Lobbying provisions?
33. Please provide a copy of the contract between EPA and Definers Corp. including any statement of work.

#### **Enforcement:**

As noted above, on December 10, the New York Times published an article identifying an alarming decrease in enforcement actions during your administration. Specifically, their analysis shows your EPA has brought one quarter fewer cases than President George W. Bush's EPA and one-third fewer cases than President Barack Obama's EPA over comparable periods. The analysis also shows that you have sought significantly smaller amounts in civil penalties.

34. Can you explain why EPA has pursued fewer enforcement cases under your leadership?
35. Please describe any complaints you have received from communities/others who have been seeking, but apparently failing to receive relief from EPA from polluters?
36. Have you been asked by anyone in industry to change EPA's enforcement policies?
37. If so, please describe those conversations.
38. Can you explain any changes you have made to testing procedures and policies (e.g. requests for information) permitted by your regional offices, enforcement officers or other EPA staff, why those changes were made and what effect they have had on enforcement?

#### **Co-Benefits of Air Rules:**

You have questioned EPA's prior evaluations of public health protections that have included "co-benefits" of deadly particulate matter.

39. Do you agree there is judicial precedent upholding EPA's approach to consider co-benefit pollution reductions?

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<sup>4</sup> Eric Lipton and Danielle Ivory, *Under Trump, EPA has Slowed Actions Against Polluters, and Put Limits on Enforcement Officers*, New York Times, (Dec. 10, 2017), <https://www.nytimes.com/2017/12/10/us/politics/pollution-epa-regulations.html>



40. Why or why not?
41. Are you planning to seek legal review of this matter?
42. Are you planning to try to change the way co-benefits, like PM<sub>2.5</sub>, are counted or considered in EPA rulemakings?
43. If so, why and what evidence do you have to support such a change?

**Ozone:**

For the 2015 Ozone rule, the Clean Air Act required all states and Tribes to submit attainment designation recommendations by October 1, 2016, and EPA was required to finalize area designations a year after. On November 6, the agency issued attainment designations for those areas that meet the 2015 standard, however EPA failed to release any nonattainment designations. In response to questions about EPA missing deadlines associated with the 2015 Ozone rule, you said the delay was due to “information that has not been provided by the states.”

44. Please provide a list of all states or Tribes who have not submitted designation recommendations to EPA for the 2015 Ozone standard. What information is still outstanding from these states or Tribes?
45. To date, has EPA notified any states or Tribes that it intends to modify any of their recommended designations? Please provide the Committee with a list of these states or Tribes, and copies of the notice provided by EPA.
46. Have you been in contact with any industry representatives or states about delaying the implementation of the 2015 Ozone standard as it relates to finalizing the remaining designations? If so, please describe the nature of your meetings and communications.
47. The Unified Regulatory Agenda included a reference to using “additional time afforded by the designations extension to finalize necessary guidance” related to the 2015 Ozone standards. However, after legal challenges from states and others, you walked back your effort to delay implementation of these standards.
  - a. Can you clarify what “extension” this refers to in the Unified Agenda?
  - b. Why would EPA need an extension to issue remaining designations?
48. When can we expect EPA to issue the remaining designations?
49. Who is on the Ozone Compliance Task Force, and what is its roll in implementing the 2015 Ozone standard? Please provide the Committee with a list of participants, schedule, meetings, materials, and communications.

**Climate Change:**

50. Federal courts have held that the quantity of emission reductions to be achieved is an important consideration in determining the “best system of emission reduction” for sources under section 111 of the Clean Air Act. What weight will you give to achieving significant emission reductions in considering a replacement for the Clean Power Plan?

At the hearing you questioned the integrity of the rulemaking that led up to EPA’s December 2009 science-based finding that greenhouse gas pollution endangers public health and welfare. As you know, EPA received over 380,000 comments on the Endangerment Finding, responded to 10 petitions for reconsideration, and explained its determination in almost one thousand pages of documentation in the Federal Register and supporting technical documents. A three-judge panel of the D.C. Circuit unanimously upheld that finding in 2012 against a barrage of legal challenges, finding that it was supported by ample evidence and that EPA had appropriately relied on authoritative analyses by the Intergovernmental Panel on Climate Change, the U.S. government and other sources.

51. Please explain why you continue to question the process that led to the Endangerment Finding in light of this history and the D.C. Circuit’s decision?

You recently stated that you intend to move forward imminently with a so-called “red team” exercise in which you will convene rival panels of scientists to debate climate science, just weeks after the Administration’s Global Change Research Program released a “Climate Science Special Report” confirming that human activities are “the dominant cause” of observed climate change, and that climate change is already having adverse impacts around the country. This report was authored by scientists from multiple Federal agencies, national laboratories, universities, and the private sector, and went through six stages of external review including review by the National Academies of Sciences, Engineering, and Medicine and an open public comment period.

52. Please explain why the “red team” exercise a good use of scarce Agency resources in light of the extraordinary research and review that the Administration invested in the CSSR?

**Budget:**

It was recently reported that officials at the Center for Disease Control and Prevention are being directed to not use seven words or phrases in official documents for the FY 2019 Budget. The forbidden words are “vulnerable,” “entitlement,” “diversity,” “transgender,” “fetus,” “evidence-based” and “science-based.”

53. Is EPA also barred from using “vulnerable,” “entitlement,” “diversity,” “transgender,” “fetus,” “evidence-based” or “science-based,” in official budget documents?
54. Does EPA have a list of forbidden words or phrases for official budget documents? If so, please provide the Committee with such list.

EPA has been experiencing a workforce reduction, including through the use of buy-outs.

55. Please detail the status of workforce reductions conducted to-date, during this administration, including overall net personnel reductions?

56. In what offices and programs have net reductions occurred?
57. Please detail the categories in which workforce reductions have occurred in 2017, such as buy-outs, other voluntary separations, reductions-in-force, etc.
58. In 2018, what additional workforce reductions are planned, assuming funding is available to accomplish them?
59. In which programs and offices are reductions planned?
60. What closures or other changes to the current EPA regional offices or labs are planned for 2018 or beyond?

### **The Honorable Paul Tonko**

#### **1. Travel to Morocco**

On December 12, EPA issued a press release, “Administrator Pruitt Promotes Environmental Cooperation with U.S. Partners in Morocco.” While no members of the press accompanied you on this trip, it was reported that the purpose of the trip was to promote U.S. natural gas exports.

- a. Please provide an itinerary of your trip along with total estimated costs to U.S. taxpayers for you and any accompanying staff, including security details.
- b. How does promoting U.S. LNG exports fit into your “Back to Basics” agenda?
- c. What authority does EPA have related to the exportation, sale, or promotion of U.S. LNG?
- d. Please provide a list of companies, trade associations, or natural gas industry representatives that you or your staff have been in contact with regarding U.S. LNG exports. Please provide all records, communications, emails, meeting attendance or materials for any of these interactions.
- e. This trip was not publicly announced until EPA issued a press release once you had already arrived in Morocco. Moving forward, will you commit to publicly announcing all foreign and domestic trips prior to traveling?

#### **2. Science at EPA**

In the draft FY 2018-2022 EPA Strategic Plan, you have promised to “prioritize robust science.” Under Objective 3.3 of the draft plan, you say that “EPA will identify, assess, conduct, and apply the best available science to address current and future environmental hazards, develop new approaches, and improve the scientific foundation for environmental protection decisions.”

- a. Do you commit to ensuring that the EPA’s actions and policies are guided by the latest climate science, as reflected in Volume 1 of the Fourth National Climate Assessment

(also known as the Climate Science Special Report or CSSR), and as described in statements and reports from the National Academy of Sciences?

- b. Do you agree with the CSSR's conclusion that "it is *extremely likely* that human influence has been the dominant cause of the observed warming since the mid-20th century... For the warming over the last century, there is no convincing alternative explanation supported by the extent of the observational evidence"?
- c. Do you commit to making information about climate change prominently available on the EPA's website, alongside information about other critical issues related to human health and the environment?
- d. Regarding the October 31 Science Advisory Board directive, can you please provide specific examples of when an EPA grant recipient on an advisory committee provided conflicted advice?
- e. On October 22, the New York Times reported, "E.P.A. Cancels Talk on Climate Change by Agency Scientists." Why were EPA scientists prohibited from speaking at a Rhode Island conference on climate change?
- f. Moving forward, will EPA scientists have the opportunity to communicate publicly about their research?

### **3. Advisors to the Administrator**

On December 13, it was reported that Dr. Michael Dourson withdrew his name to serve as Assistant Administrator for the Office of Chemical Safety and Pollution Prevention.

- a. In October, it was reported that Dr. Dourson was already working at the agency as an Adviser to the Administrator. Can you confirm whether Dr. Dourson has left the agency?
- b. If not, what are the roles and responsibilities of Dr. Dourson?
- c. What ethics or conflict of interest agreements apply or applied to Dr. Dourson in his role as Advisor to the Administrator?
- d. You testified that the October 31 Science Advisory Board directive was driven by a concern that "a perception or an appearance of a lack of independence in advising the Agency." Did any EPA leadership have a conversation or express concerns about the perception of conflict of interest from Dr. Nancy Beck's involvement in revising the TSCA framework rules after leaving a position with the American Chemistry Council?

### **4. Enforcement Actions and Monitoring**

On December 10, the New York Times reported that EPA regional staff must seek authorization from HQ before asking companies to track their emissions. Monitoring is critical to ensure that

the environmental and health gains that have been made in recent decades are not undone. Power generating facilities in the Midwest emit sulfur dioxide and nitrogen oxides, which are the major precursors of acid rain which has caused the acidification of many Adirondack lakes and ponds.

- a. The Adirondack Lake Survey Corporation receives EPA funding for long-term monitoring of water quality recovery from acid rain. Do you support continuation of this long-term monitoring funding?

## **5. Hudson River Superfund Site**

The State of New York has stated that the Hudson River PCB cleanup has not met the goals of the program, and that additional action is needed. Federal Natural Resource Trustees have also expressed concerns. The EPA Region II office does not appear to acknowledge the scientific basis of the state's and Trustee's analysis.

- a. Will EPA reconsider the recommendations of the Second Five-Year Review Report in light of the analysis done by the State and Trustee agencies?

## **6. OIG**

The Office of Inspector General (OIG) Semiannual Report: April 1, 2017 - September 30, 2017 raised a number of issues about interference with the OIG's independence. From that report: "A second budget impediment occurred when the OIG submitted an FY 2019 request for \$62 million to the agency for inclusion in the President's budget. Without seeking input from the OIG, the agency provided us with a request of \$42 million. The agency informed the OIG that the Office of Management and Budget mandated budget requests Semiannual Report to Congress April 1, 2017—September 30, 2017 13 could not be more than a certain percentage above the President's FY 2018 budget. The EPA also informed the OIG that the \$42 million request would not change. The OIG submitted a memorandum to the Office of Management and Budget stating the OIG's original budget request, and explaining that the EPA's submitted budget did not reflect the OIG's desired funding levels and would have significant negative impacts on OIG operations."

- a. Do you believe a fully funded, independent Inspector General is necessary for EPA to run as an efficient and accountable agency?

## **7. IRIS**

- a. How do you view the role of IRIS relative to ensuring full implementation of the TSCA program?
- b. Will you commit to fully supporting the IRIS program?

**The Honorable Diana DeGette**

1. Methane is up to 34 times more potent a greenhouse gas than carbon dioxide and makes up approximately ten percent of annual greenhouse gas emissions in the United States. Despite the harm methane can cause, the EPA has proposed delaying rules that would have curbed methane emissions from oil and gas industry sources. The proposed delay of the 2016 methane rule published in the Federal Register on June 16, 2017, states “the EPA believes that the environmental health or safety risk addressed by this action may have a disproportionate effect on children.”
  - a. Do you agree that children would be disproportionately affected by delaying methane emissions restrictions on the oil and gas industry?
  - b. What are the estimated costs of the health impact on children?
2. During your testimony we discussed the decision on a final rule concerning methylene chloride use in paint stripper. You promised to review the status of the rule and provide an update soon after the hearing. Rules concerning N-methylpyrrolidone (NMP) and trichloroethylene (TCE) were proposed at the same time. Prohibitions against certain uses of NMP and methylene chloride were removed from the Fall 2017 Unified Agenda of Regulatory and Deregulatory Actions.
  - a. The Fall Unified Agenda was released on December 14, one week after your testimony before the committee. At what point was the decision made to remove the NMP and methylene chloride rules from the Unified Agenda?
  - b. When will EPA finalize the rules for TCE, NMP, and methylene chloride under TSCA?
  - c. What role did Michael Dourson have as an EPA adviser in determining the timeline for these rules?
3. In response to the explosion at the West Fertilizer Plant in Texas in 2013, EPA developed updates (the “Chemical Disaster Rule”) to Risk Management Plans (RMP) requirements. This update would have included common sense reforms, including improved accident prevention provisions and enhancements to emergency response preparation. In June 2017, the implementation of this rule was delayed. The rule had been in development for three years and was subject to more than 40,000 public comments.
  - a. During Hurricane Harvey, the Arkema Chemical plant in Crosby, Texas, experience fires due to a failure of emergency generators and backup cooling systems. First responders have filed suit against Arkema alleging that Arkema misrepresented the threat posed by chemicals at the site. A situation like this, where first responders cannot adequately prepare to respond to emergencies at chemical production facilities, is the sort of circumstances that the Chemical Disaster Rule was designed to avoid. Have the events at the Arkema plant, where first responders were put at risk, caused you to reconsider the delay of the Chemical Disaster Rule?

- b. The proposed EPA budget for fiscal year 2018 reduced funding for inspection of sites under the RMP by 35 percent, straining a program that only has 30 inspectors for 12,500 sites. In light of the number of facilities that need to be inspected, the low frequency of inspection, and the specter of climate change related extreme weather events like Hurricane Harvey, do you still feel the cuts to the inspection program are prudent?
- 4. The Climax Molybdenum Mining company in Colorado has asked the state of Colorado to relax limits on molybdenum allowed in runoff from the Climax mine in Summit County Colorado. Molybdenum is on the Contaminant Candidate List 4 (CCL-4). It was also on the CCL-3. Currently, states have minimal guidance from the EPA on the potential hazards of molybdenum in drinking water.
  - a. Is EPA currently collecting data on the health or environmental impacts of molybdenum in drinking water?
  - b. Will molybdenum be part of the Regulatory Determination 4 process going forward?
- 5. For more than two years, I have been focused on addressing the environmental damage caused by the August 2015 release of toxic mine water from Gold King mine in San Juan County, Colorado.
  - a. I was glad to see the Bonita Peak Mining District (which includes Gold King mine) was included on the list EPA released on December 8, 2017, of sites targeted for “immediate, intense action.” Can you elaborate on the action EPA plans to take in the Bonita Peak Mining District and the expected timeline?
  - b. On December 17, 2017, the *Denver Post* reported on the success of cleanup efforts related to toxic Argentine Mine complex near Rico, Colorado. The article noted that the part of the success is that the private company legally responsible for cleaning up the site has invested “tens of millions of dollars” in the cleanup compared to less than \$5 million the EPA has invested in the cleanup of Gold King. What additional funding will EPA invest in the Gold King cleanup?
  - c. On October 19, 2017, the *Denver Post* reported that there is uncertainty regarding the ongoing costs association with the water treatment plant EPA is operating to clean up water from Gold King Mine. The annual cost of operating the plant is \$1.2 million and it produces toxic sludge while purifying the runoff. What is the EPA’s long-term plan for the plant costs?
  - d. What is the status of finding a permanent solution for the waste sludge from the plant?

**The Honorable Jerry McNerney**

1. At the December 7<sup>th</sup> hearing, I stated that less than half of the U.S. population was included in the ozone designations laid out by the EPA. Though this statement was not made in the form of a question, Administrator Pruitt interjected, proclaiming that the lack of inclusion was due to missing information that needs to be submitted by states. However, on the EPA's website, there is a full list of state recommendations from 2015. Will the Administrator please explain his statement and what information is missing from which states?



**ND Corn Growers Association**  
**Smart Sector Subjects**  
**June 25, 2018**

**Ethanol Priority Issues**

- **RVP parity for ethanol blends greater than 10 percent, such as E15**  
Corn growers have asked EPA to use the agency's authority to extend the 1.0 pound per square inch (psi) Reid Vapor Pressure (RVP) allowance that currently applies for 10 percent ethanol blends to E15, enabling E15 to be sold year-round and enter the market on the same terms as E10. We believe EPA has several justifiable options to update the agency's RVP regulations and encourage EPA to move forward. Because E15 has lower evaporative emissions than E10, as well as produces fewer tailpipe emissions, extending the same RVP allowance to E15 as applies to E10 furthers EPA policy goals.
- **Broad grant of RFS exemptions for small refineries without reallocating exempted obligations to other parties**  
Corn growers are extremely concerned with EPA's recent use of the small refinery exemption authority to grant RFS exemptions to small refineries. If the exempted obligations are not reallocated to other obligated parties, the Agency's actions have the effect of reducing the RFS volume requirements. Most recently in the 2019 RVO proposed rule, EPA stated exemptions granted for 2016 and 2017 RFS obligations amounted to 2.25 billion ethanol-equivalent gallons. For farmers, every billion gallons of ethanol production ties back to 2.1 million acres of corn; these exemptions impact corn demand.

**Clean Water Act Issues**

- **We look forward to a new WOTUS rule that provides clear jurisdictional boundaries to farmers and protects our nation's water.**  
Under the unlawful 2015 Rule farmers would have had to obtain permits for discharges into mostly-dry land features that are not actually "waters of the United States" (at a costs of tens or hundreds of thousands of dollars per permit), or assume the risk of fines and criminal penalties.
- **NCGA and ND Corn supports the repeal of the National Pollutant Discharge Elimination (NPDES) permits for pesticide applications as mandated by the U.S. Sixth Circuit Court of Appeals.**  
Requiring Clean Water Act NPDES water permits for pesticide applications is redundant, costly, and provides no additional environmental benefit.

## Crop Protection Issues

- **ND Corn growers urge the EPA to objectively evaluate the risks and benefits of crop protection products using the best available science.**

NCGA and ND Corn supports a requirement for a scientific-based review and cost risk/benefit analysis for the registration and re-registration of crop protection products including triazines.

- **The interagency consultation process for pesticide registrations under Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) and the Endangered Species Act (ESA) must be streamlined.**

The continued confusion around this process and a path forward has been an issue for decades and has not provided additional protection for wildlife. The process has created confusion on the farm, in the marketplace, and wasted time and resources.

## **US EPA and North Dakota Departments of Agriculture and Health**

### **Agriculture Smart Sectors Meeting**

**Minot, ND**

**Monday, June 25 – 3:00 pm – 4:30 pm**

### **Meeting Summary**

#### **Welcome and Introductions**

Environmental Protection Agency (EPA) Senior Advisor to the Regional Administrator Patrick Davis welcomed attendees and invited the attendees to introduce themselves and offer their ideas for EPA reforms.

#### **Stakeholder Input**

Participants introduced themselves and provided the following comments organized by environmental statute:

##### **Clean Water Act:**

- Water issues such as salinity, drainage-tiling, wetlands, and 'tea cups' were discussed. It is hoped that these issues will be addressed in a WOTUS rewrite.
  - Salinity – Farmers need less regulation in dealing with salinity.
  - EPA needs to support farmers doing soil health activities.
  - EPA and US Army Corps of Engineers need to cooperate in streamlining soil health activities.
  - Ag is responsible for water on their land so they need to be able to talk freely with the EPA about solutions without fear of enforcement.
- No till challenge:
  - Soil test show phosphorus (P) in the soil but plants grown in the soil are P deficient. This is due to the stratification of P in the top three inches of the soil and not being available to plant in the deeper root zone. This causes over application of P.
- Nutrients – We don't need more regulations, we need better farmer education. (ie: manure application is good for soil and water but farmers need to be educated about how to apply).
  - North Dakota's nutrient strategy is to help farmers learn how to reduce nutrient loss in water without hurting crop profitability (NDDH)

- Some producers need nutrient management education while others are great stewards. We should celebrate the “good” producers are doing and make them examples for the rest of the industry.
- ND has water bodies of concern but they are not being cleaned. They contain sedimentation from nutrients deposited in the 1950’s and new water stirs up sediment. These water bodies need to be dredged. Challenge: Corps won’t let farmers deal with the issue without a 404 permit.

#### Clean Air Act:

- The Renewable Fuel Standard and its importance to the corn and ethanol industries in North Dakota was explained.
  - EPA is undermining RFS granting waivers to oil refineries.
  - The ethanol industry wants to sell E15 year-round.
  - Corn is good for rotation with wheat and soybeans to deal with weeds and corn needs the ethanol market.
  - “We need an explanation from EPA as to what constitutes a ‘hardship waiver’ for oil refineries.”
  - Separate RIN’s from the marketplace. EPA should set the price of RIN’s and RFS violation fines should be paid to the EPA. This would provide stability and predictability for the RIN market.
- Carbon dioxide should be reclassified as NOT a pollutant because it is a basic building block for human existence.

#### FIFRA:

- EPA needs to streamline the pesticide approval process to resurrect old” chemistries’. Label pesticide for when you anticipate losses Don’t wait for an agricultural loss to process FIFRA section 18.
- EPA needs to be proactive in allowing farmers the use of other chemicals if they are effective for the targeted weed or pest. Deal with weed resistance issues before they become an emergency – EPA needs better guidance.
- Simplify the chemical repackaging tracking process. EPA chemical repackaging guidance is hard to understand especially for small cooperatives. EPA’s FIFRA risk assessment information is outdated and not easily accessible to the public.
- Harmonize labels with Canada. Improve coordination between EPA and Canada when it comes to chemical approval. (ie: paraquat is the preferred dry down for canola production and however other countries do not allow a tolerance for this chemical. US and Canada seem stubborn about accepting each other’s label language.)
- Pollinators (bees and butterflies) were discussed. Agriculture is NOT 100% to blame for the loss of pollinators. Education v. regulation is necessary for agriculture and the environmental community to learn from each other. Minnesota and California take an aggressive stance on certain agriculture products making it difficult for the entire

industry to use those products. The Dakota skipper butterfly was identified as a concern in North Dakota ([ HYPERLINK

"https://www.fws.gov/midwest/endangered/insects/dask/daskFactSheet.html" ])

- Use social media to distribute educational information about the relationship between pollinators and agriculture.

#### Community Right to Know and RMP:

- EPA needs to simplify RMP guidance, break out materials by industry regulated under RMP. (ie: Rules applicable to chemical manufacturing are not relevant to a farmer and the guidance document is long and complicated.)
- EPA should develop short outreach education materials or videos to explain RMP compliance.
- Question – Is the SPCC rule for farms final?

#### Miscellaneous/another Federal agency:

- EPA should adopt the “Keep it Simple” principle when it comes to labeling, regulations and reducing red tape.
- Perpetual easements for wildlife are a challenge for the ag community.
- Frustration was expressed over difficulty accessing information from the EPA. Suggestion for more EPA ag liaisons, possibly specialized by livestock and commodities.
- It is a burden to report similar information to both state and federal governments. Reduce the amount of reports required by the EPA.
  - EPA and states need to agree on a simple consistent message for farmers to understand.
  - There appears to be no regulatory consistency between states which creates compliance issues for businesses which cross state boundaries.
  - “What is the recourse if I have a question about inconsistent application of regulations?” (ie: inconsistencies between government regulators – EPA/OSHA/state – EPA insists on regulating ‘shared anhydrous ammonia tanks’ as retail operations when they are NOT a retail operation. EPA regulations like this need to be tailored to this unique situation.
- DO NOT develop guidance for perceived problems.
- A unique ND challenge – 23 million acres planted but 300K irrigated. North Dakota is dependent on Mother Nature.

#### Next Steps

EPA staff will follow up on the various ideas suggested during the meeting and respond to individual concerns in a timely manner.

## Appointment

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**From:** Baptist, Erik [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=10FC1B085EE14C6CB61DB378356A1EB9-BAPTIST, ER]  
**Sent:** 6/1/2018 8:57:11 PM  
**To:** Leopold, Matt (OGC) [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=4e5cdf09a3924dada6d322c6794cc4fa-Leopold, Ma]  
**Subject:** Declined: Briefing on RFS Small Refineries Exemption  
**Location:** 4000  
  
**Start:** 6/4/2018 2:00:00 PM  
**End:** 6/4/2018 3:00:00 PM  
**Show Time As:** Busy

Message

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**From:** Greaves, Holly [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=ABCB6428B3DF40A9A78B059A8BA59707-GREAVES, HO]  
**Sent:** 7/27/2018 5:31:19 PM  
**To:** Bolen, Brittany [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=31e872a691114372b5a6a88482a66e48-Bolen, Brit]; Palich, Christian [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=330ad62e158d43af93fcbbece930d21a-Palich, Chr]  
**Subject:** concise talkers from budget hearings  
**Attachments:** Air Summary 041718.docx; Land Summary 041718.docx; Other Summary 041818.docx; Water Summary 041718.docx; Chemical Summary 041918.docx; Appendix by media 041618.docx

Brittany/Christian,

I know the programs are working on talking points, but to the extent this is helpful I wanted to share some of the more concise talking points that I used to pass to Pruitt in approps hearings. Paige and I made a lot of back and forth changes, so I am not 100% sure these are all the most current, but I do have her hard copy binder to the extent you want to see what we used.

I believe in large part these were either reviewed by the political team or taken from notes I made during hearing prep, though certainly some are straight from fact sheets.

Certainly there are topics here that won't come up, but I did want to share. The appendix may be helpful to review topics to see which attachment might be useful.

Thanks,

Holly W. Greaves  
Chief Financial Officer  
Office of the Chief Financial Officer  
Environmental Protection Agency  
(202) 564-1151

Message

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**From:** Bolen, Brittany [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=31E872A691114372B5A6A88482A66E48-BOLEN, BRIT]  
**Sent:** 4/19/2018 11:36:16 PM  
**To:** 'William Lovell (lovell.william@epa.gov)' [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=3b150bb6ade640f68d744fadcb83a73e-Lovell, Wil]  
**Subject:** FW: Administrator's Hearing Prep - Program Office Summary Sheets for Review  
**Attachments:** 04-19-2018 - House Budget Hearing Program Cheat Sheets V5 OCIR.docx

**Importance:** High

Will, I'm inclined to have this updated with the last 2-pager we gave Ryan. I just glanced at this and most of the reg actions in this document look to be outdated. Appreciate you trying to coordinate with OCIR on this tomorrow, if possible.

---

**From:** Ringel, Aaron  
**Sent:** Thursday, April 19, 2018 4:52 PM  
**To:** Gunasekara, Mandy <Gunasekara.Mandy@epa.gov>; Forsgren, Lee <Forsgren.Lee@epa.gov>; Traylor, Patrick <traylor.patrick@epa.gov>; Beck, Nancy <Beck.Nancy@epa.gov>; Kelly, Albert <kelly.albert@epa.gov>; Cook, Steven <cook.steven@epa.gov>; Yamada, Richard (Yujiro) <yamada.richard@epa.gov>; Bolen, Brittany <bolen.brittany@epa.gov>; Burke, Marcella <burke.marcella@epa.gov>  
**Cc:** Greaves, Holly <greaves.holly@epa.gov>; Lyons, Troy <lyons.troy@epa.gov>; Shimmin, Kaitlyn <shimmin.kaitlyn@epa.gov>; Rodrick, Christian <rodrick.christian@epa.gov>; Palich, Christian <palich.christian@epa.gov>; Frye, Tony (Robert) <frye.robert@epa.gov>; Falvo, Nicholas <falvo.nicholas@epa.gov>; Hanson, Paige (Catherine) <hanson.catherine@epa.gov>; Feeley, Drew (Robert) <Feeley.Drew@epa.gov>  
**Subject:** Administrator's Hearing Prep - Program Office Summary Sheets for Review  
**Importance:** High

Colleagues,

Attached is a program office summary document with topics we wanted to highlight for the administrator during his hearing prep next week. This is similar to what we have prepared for his use during previous hearings and takes into account likely policy based questions we expect.

Please take a moment to review/make edits in your relevant areas. We are planning to have this finalized for Ryan's review by tomorrow so if you could return with any comments by noon on Friday it would be greatly appreciated. Please feel free to reach out if you have any questions.

Best,  
Aaron

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**Aaron E. Ringel**  
*Deputy Associate Administrator*  
*Office of Congressional & Intergovernmental Relations*  
*U.S. Environmental Protection Agency*

W: 202.564.4373  
[Ringel.Aaron@epa.gov](mailto:Ringel.Aaron@epa.gov)



Message

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**From:** Bolen, Brittany [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=31E872A691114372B5A6A88482A66E48-BOLEN, BRIT]  
**Sent:** 4/19/2018 11:34:46 PM  
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**Subject:** FW: Administrator's Hearing Prep - Program Office Summary Sheets for Review  
**Attachments:** 04-19-2018 - House Budget Hearing Program Cheat Sheets V5 OCIR.docx  
  
**Importance:** High

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**From:** Ringel, Aaron  
**Sent:** Thursday, April 19, 2018 4:52 PM  
**To:** Gunasekara, Mandy <Gunasekara.Mandy@epa.gov>; Forsgren, Lee <Forsgren.Lee@epa.gov>; Traylor, Patrick <traylor.patrick@epa.gov>; Beck, Nancy <Beck.Nancy@epa.gov>; Kelly, Albert <kelly.albert@epa.gov>; Cook, Steven <cook.steven@epa.gov>; Yamada, Richard (Yujiro) <yamada.richard@epa.gov>; Bolen, Brittany <bolen.brittany@epa.gov>; Burke, Marcella <burke.marcella@epa.gov>  
**Cc:** Greaves, Holly <greaves.holly@epa.gov>; Lyons, Troy <lyons.troy@epa.gov>; Shimmin, Kaitlyn <shimmin.kaitlyn@epa.gov>; Rodrick, Christian <rodrick.christian@epa.gov>; Palich, Christian <palich.christian@epa.gov>; Frye, Tony (Robert) <frye.robert@epa.gov>; Falvo, Nicholas <falvo.nicholas@epa.gov>; Hanson, Paige (Catherine) <hanson.catherine@epa.gov>; Feeley, Drew (Robert) <Feeley.Drew@epa.gov>  
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Best,  
Aaron

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**Aaron E. Ringel**  
*Deputy Associate Administrator*  
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*U.S. Environmental Protection Agency*  
  
W: 202.564.4373  
[Ringel.Aaron@epa.gov](mailto:Ringel.Aaron@epa.gov)

Message

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**From:** Chapman, Apple [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=C52A18BCF6164B6D9F04545DB694CAC1-ACHAPMAN]  
**Sent:** 4/4/2018 2:57:20 PM  
**To:** Brooks, Phillip [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=e89130d467df414390f076286d938815-Brooks, Phillip]  
**Subject:** Re: BIOFUELS UPDATE: \*\*\*More Small Refineries to Seek RFS Exemptions After Andeavor, PES

Appears so.

Sent from my iPhone

On Apr 4, 2018, at 10:41 AM, Brooks, Phillip <[Brooks.Phillip@epa.gov](mailto:Brooks.Phillip@epa.gov)> wrote:

I think the wind just picked up.

Sent from my iPhone

On Apr 4, 2018, at 10:35 AM, Kodish, Jeff <[Kodish.Jeff@epa.gov](mailto:Kodish.Jeff@epa.gov)> wrote:

Sent from my iPhone

Begin forwarded message:

**From:** [alertsadmin@opisnet.com](mailto:alertsadmin@opisnet.com)  
**Date:** April 3, 2018 at 2:26:02 PM MDT  
**To:** [kodish.jeff@epa.gov](mailto:kodish.jeff@epa.gov)  
**Subject:** BIOFUELS UPDATE: \*\*\*More Small Refineries to Seek RFS Exemptions After Andeavor, PES

2018-04-03 04:25:52 EDT

\*\*\*More Small Refineries to Seek RFS Exemptions After Andeavor, PES

The reported approval of small refinery exemptions due to disproportionate economic hardship caused by the Renewable Fuel Standard (RFS) to Andeavor is expected to give hope to all small refineries in the U.S. in securing the same exemptions from the Environmental Protection Agency (EPA), industry sources told OPIS on Tuesday.

The momentum for more small refineries to apply and possibly secure an RFS exemption from EPA should pick up steam. It started with the settlement agreement deal between Philadelphia Energy Solutions (PES) and

EPA on PES' RINs obligations in March, followed by the latest report on Andeavor by Reuters.

Reuters reported that Andeavor secured RFS exemptions for three small refineries out of its portfolio of 10 refineries. An Andeavor spokeswoman declined to comment on the report.

Sources told OPIS that the floodgates for all small refineries to apply for RFS exemptions should be officially open now. Several years ago, RFS exemptions were very limited, and the refinery company names associated with these exemptions were the lesser known refiners, including Placid Refining, Sinclair and Kern Oil.

However, Andeavor, which has a large refinery network, has broken that mold. More big name refinery companies could apply for the RFS exemptions for their small refineries. These companies include Phillips 66, Valero, Delek and Chevron.

"It is open season for small refiners (to apply for RFS exemptions). All refiners should be applying. Why not?" a source said, adding that PES, a large refinery with 335,000 b/d of capacity, had been exempted for its RINs obligations.

The PES exemption, even though the company filed for bankruptcy, in theory should open doors for all small refineries to secure the same RFS exemptions, the source said.

There are 141 operable refineries in the U.S. Of which, about 55 refineries, or 31%, could qualify under the EPA small refinery economic hardship exemptions, based on individual refinery capacity. Some states in the U.S., which have multiple small refineries, could be totally exempted from the RFS obligations if EPA grants all small refineries an exemption. These states include Alaska and

Alabama.

The EPA loosely spells out the criteria for small refinery exemption applications. EPA said that the Clean Air Act includes a temporary exemption from renewable fuel volume obligations for small refineries. Small refineries seeking exemption must petition EPA.

The exemption may be granted only if EPA determines, based on supporting evidence provided in the petition, that compliance with RFS obligations will impose "disproportionate economic hardship" on the refinery in the year for which an exemption is requested.

The RFS regulations define a small refinery as one with an average crude oil input no greater than 75,000 b/d in 2006. Additionally, the small refinery may not have an average aggregate daily crude oil throughput greater than 75,000 b/d in the most recent full calendar year prior to submitting a petition, and cannot be projected to exceed the 75,000-b/d threshold in the year or years for which it is seeking an exemption.

While renewable volume obligations would be proportionate for small refiners compared with larger refiners, sources said that these EPA exemptions typically offer breathing room for smaller refiners in terms of investments. Smaller refiners could be allowed more time to make hefty investments to their refineries or operations due to tighter financial constraints of a smaller company.

According to a letter from PBF Energy submitted to the Department of Justice at end-March, PBF said that over 25 small refiners have filed for economic hardship exemptions from the RFS this year, the most EPA has received at once and among the highest number of filings historically.

Small refiners would not have to keep filing for such waivers if they were able

to recover RIN costs, PBF said in response to the settlement agreement for PES at bankruptcy court.

These facilities and companies are shutting down or being acquired by larger refiners because they can't compete with the unnatural advantage the RFS provides integrated oil companies, PBF said. The competitive distortion in favor of integrated oil companies and large retail chain owners was predicted by the Department of Energy in its 2011 study for Congress, it added.

Granting more RFS exemptions to smaller refineries may be just a band aid for solving the RFS conundrum, sources said.

If more small refineries were to be granted RFS exemptions, the renewable volume obligations percentages for obligated parties and/or larger refineries would go higher, although the hike would be small, with every barrel of small refiner exemptions, they said. All obligated parties would need to make up for any small refiner exemptions.

This has led to the call by some refiners to fix the RFS system as a whole rather than offering temporary solutions.

Meanwhile, RINs prices reacted bearishly to the report on Andeavor securing RFS exemptions for three small refineries. The RINs market was also weaker in response to the PES settlement agreement deal with EPA.

--Edgar Ang, [eang@opisnet.com](mailto:eang@opisnet.com)

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Message

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**From:** Hengst, Benjamin [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=C414E2BF04A246BB987D88498EEFF06-HENGST, BENJAMIN]  
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**Subject:** RE: Hengst, Benjamin shared "2018.9.14 SRE litigation" with you.

Thanks—I'll work this in to the slide deck. Ben

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**From:** Stahle, Susan  
**Sent:** Wednesday, September 12, 2018 12:33 PM  
**To:** Hengst, Benjamin <Hengst.Benjamin@epa.gov>; Sutton, Tia <sutton.tia@epa.gov>; Cohen, Janet <cohen.janet@epa.gov>; Nelson, Karen <nelson.karen@epa.gov>; Michaels, Lauren <Michaels.Lauren@epa.gov>; Bunker, Byron <bunker.byron@epa.gov>; Machiele, Paul <machiele.paul@epa.gov>; Orlin, David <Orlin.David@epa.gov>; Parsons, Nick <Parsons.Nick@epa.gov>; McKenna, Chris <McKenna.Chris@epa.gov>; Burkholder, Dallas <burkholder.dallas@epa.gov>  
**Subject:** RE: Hengst, Benjamin shared "2018.9.14 SRE litigation" with you.

To support one of the comments I made, I am attaching the petition for reconsideration from the PRUITT Petitioners in which they specifically request that EPA finalize the portion of the REGS rule that would codify the CBI determination. Here is one excerpt from that PFR (pg. 2):

"As such, we also request that EPA finalize proposed regulation 40 C.F.R. § 80.1441(e)(2)(iv), which was part of the proposed Renewables Enhancement and Growth Support Rule, 81 Fed. Reg. 80,828, 80,934 (Nov. 16, 2016). There, EPA explained that they had made a "determination that basic information related to EPA actions on petitions for RFS small refinery and small refiner exemptions may not be claimed as confidential business information." Id. at 80,909. EPA was simply proposing to codify this determination."

I sure hope I am not the only one who has read this delightful document.... 😊

Susan Stahle  
Air and Radiation Law Office

Office of General Counsel  
U.S. Environmental Protection Agency  
WJCN-7502B  
202-564-1272

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**From:** Hengst, Benjamin

**Sent:** Wednesday, September 12, 2018 11:45 AM

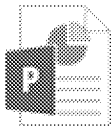
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**Subject:** Hengst, Benjamin shared "2018.9.14 SRE litigation" with you.

All: this version of the Wehrum briefing incorporates Sue's edits. Please make any further edits/comments by noon on Thursday, 9/13. thanks, Ben



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2018.9.14 SRE litigation

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Message

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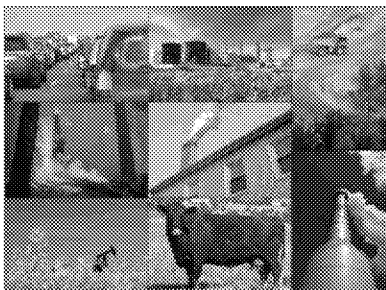
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**Subject:**

Air & Radiation Law News for July 10, 2015



## Air & Radiation Law News for July 10, 2015

## *Air Pollution*

### **Texas Asks Court to Review EPA Clean Air Program Rule**

Texas asked a federal appeals court to review an Environmental Protection Agency decision to reverse its approval of provisions in the state's clean air program regulating emissions during unplanned startup, shutdown and malfunctions...

## *Budget*

### **Vote on Interior/EPA Bill Nixed After Flag Flap**

The fate of a nearly \$30.2 billion piece of legislation to fund the Interior Department, the Environmental Protection Agency and other agencies for the upcoming fiscal year is in serious doubt after an unexpected reversal from House Republicans....

## *Climate Change*

### **Banks Agree on Approach to Tracking Climate Finance**

On the eve of a major United Nations conference on development financing, the world's top development finance institutions have agreed on a common approach for systematically tracking financial commitments aimed at helping "vulnerable"...

## *Climate Change*

### **Programs to Help Low-Income Communities With Climate**

The White House unveiled July 9 more than \$25 million worth of public and private programs for helping communities bounce back after being hit by more intense flooding, hurricanes and other impacts of climate change....

## *Climate Regulation*

### **States Should Resist EPA Clean Power Plan: Pence**

A recent U.S. Supreme Court decision requiring the Environmental Protection Agency to consider costs earlier in its regulatory process shows why states should consider aggressively resisting efforts to comply with the agency's Clean...

## *Coal Mining*

### **Interior Won't Appeal Colorado Coal Mine Ruling**

The Interior Department will not appeal a decision by the U.S. District Court for the District of Colorado that the department failed to properly consider environmental impacts in approving the expansion of a coal mine in northwest Colorado....

## *Energy*

### **Benefits of Lifting Oil Export Ban Touted at Hearing**

The reasons behind the 1970s-era ban on crude oil exports "are no longer true," House Energy and Power Subcommittee Chairman Ed Whitfield (R-Ky.) said during the panel's first hearing on legislation to lift the trade restriction....

## *Energy*

### **EPA: Speculators Not Distorting Ethanol RIN Trade**

Trading in U.S. biofuel credits isn't being manipulated by speculators, according to new data on participants in the market....

## *Energy*

### **FERC Asked to Assess How Rules Harm Power Plants**

The Federal Energy Regulatory Commission was asked by top Republicans on the House and Senate energy committees to take action to ensure that market rules don't lead to premature retirements of nuclear and coal-fired power plants....

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## *EPA*

### **McCarthy Slammed for Obstructing Document Requests**

The Environmental Protection Agency's failure to promptly provide congressional committees with information and documents can only be labeled a "pattern of obstruction" meant to thwart oversight attempts, Rep. Lamar Smith...

## *Hazmat Transport*

### **Energy Department, PHMSA Announce Research on Crude**

The Energy and Transportation departments announced July 9 the next research they will fund regarding crude oil characteristics, an issue that has garnered interest in light of a string of derailments of trains carrying crude oil....

## *International Climate*

### **Senate Appropriations Approves Green Climate Funding**

U.S. funding for the Green Climate Fund, which President Barack Obama has pledged in a bid to persuade developing nations to participate in a global climate accord, survived a close vote in the Senate Appropriations Committee July 9....

## *Litigation*

### **China Pushing Mediation Over Environmental Lawsuits**

China announced a pilot program to encourage pretrial mediation rather than court action to resolve environmental charges contained in public interest lawsuits....

## *Taxes*

### **Wind Tax Credit Expected in Senate Extenders Package**

Republican backers of the wind production tax credit (PTC) on the Senate Finance Committee say they are confident the incentive will be included in a tax extenders package expected to be marked up later this month. ...

## *Vehicle Fuels*

### **Court Affirms Denial of Fuels Exemption Request**

A federal appeals court upheld the Environmental Protection Agency's decision to not exempt an Arkansas refiner from the renewable fuel standard (Lion Oil Co. v. EPA, 2015 BL 217469, 8th Cir., No. 14-3405, 7/8/15)....

## **Maryland Commission to Examine Regulatory Impacts**

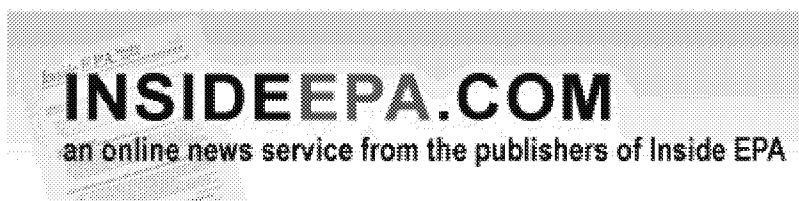
A newly formed regulatory reform commission will examine which "over-burdensome and out of control" regulations are affecting Maryland's business sector, and have outlived their utility, Gov. Larry Hogan (R) said July...

## **BNA INSIGHTS**

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### **Forecasting Federal Implementation of the EPA's Clean Power Plan**

Like many environmental laws, the Clean Air Act is built on the principle of federalism: acting through the Environmental Protection Agency, the federal government establishes air quality standards, and states are responsible for implementing...



## Latest News

### **GOP Cites Environmental Justice As Argument Against Major EPA Policies**

House Republicans are citing potential adverse impacts from major EPA air and climate rules on environment justice communities as a reason for the agency to drop the rules, an attempt by the GOP to bolster their criticism of the policies by focusing on equity areas -- which EPA has long said its regulations are designed to protect.

## News Briefs

### **4th Circuit Lets Discovery Proceed In EPA Rules 'Jobs' Suit**

A federal appeals court has denied EPA's bid to stop discovery in a coal industry suit aiming to force the agency to conduct a review of its air rules' impacts on jobs, rejecting without comment agency claims that industry is mounting a "fishing expedition" in hopes of revealing documents that would support political attacks on EPA.

### **Texas Sues EPA Over Final SSM 'SIP Call' Regulation**

Texas has filed suit against EPA over the agency's final rule forcing 36 states to scrap language from their Clean Air Act compliance plans that waives some industry liability for emissions limit violations during periods of facility startup, shutdown and malfunction (SSM), adding to legal challenges already filed by industry groups.

# Greenwire

## **APPROPRIATIONS:**

### **GOP pulls Interior-EPA bill over Confederate flag clash**

Amanda Peterka, E&E reporter

Published: Thursday, July 9, 2015

House leadership today pulled a fiscal 2016 spending plan for the Interior Department and U.S. EPA off the chamber floor after the introduction last night of a controversial amendment on the Confederate flag.

In his weekly press conference, House Speaker John Boehner (R-Ohio) said the bill would sit "until we come to some kind of resolution on this." The bill had been slated for a vote on final passage later today.

To protest the dust-up over the flag, Rep. Jim Clyburn (D-S.C.) unsuccessfully moved for the House to immediately adjourn.

Rep. Ken Calvert (R-Calif.), ranking member of the House Interior, Environment and Related Agencies Appropriations Subcommittee, introduced the amendment in question last night as the House wrapped up debate on the \$30.17 billion bill.

The amendment would have undone Tuesday voice votes by the House to remove the Confederate flag from cemeteries on public lands and to restrict the sale of the flag at National Park Service facilities. Rep. Betty McCollum (D-Minn.), ranking member on the subcommittee, last night requested a recorded vote on the amendment that would have occurred later this afternoon.

The House has been debating the Interior-EPA bill since Tuesday. That day, Reps. Jared Huffman (D-Calif.) and Hakeem Jeffries (D-N.Y.) introduced three amendments to restrict the display of the Confederate flag at national parks and at cemeteries on public lands. All three amendments passed on voice vote.

This morning, Democratic members of the House took to the floor to protest the amendment. The Confederate flag has sparked widespread backlash since the killing last month of nine African Americans in a church in South Carolina. The amendment coincided with a vote in the South Carolina Legislature to remove the flag from the statehouse.

"It is appalling that House Republicans stealthily offered an amendment to the FY2016 Interior Appropriations bill last night that would require the National Park Service to continue allowing the display or sale of the Confederate flag -- less than twenty-four hours after the House adopted amendments restricting its use," House Minority Whip Steny Hoyer (D-Md.) said in a statement this morning.

In his press conference, Boehner said he believed that Confederate flag should not be at federal cemeteries.

"I think it's time for some adults here in Congress to sit down and have a conversation about how to address this issue," he said. "I do not want this to become some political football."

Calvert released a statement shortly after leadership pulled the bill, saying he regretted not "fully explaining his intent given the strong feelings" that members have on the issue. He said that he introduced the amendment at the behest of leadership.

"The leadership amendment would have codified existing National Park Service policy set by the Obama administration," he said in the statement. "Those Obama administration policies prohibit the sale and display of the Confederate flag on National Park Service properties, except when displayed in an educational context.

"To be clear," he added, "I wholeheartedly support the Park Service's prohibitions regarding the Confederate flag and the amendment did nothing to change these prohibitions."

Rep. John Lewis (D-Ga.), a leader of the civil rights movement, slammed that argument.

"There's not any room on federal property for the display of the Confederate battle flag," he said.

Leadership had expressed a desire to work through all appropriations bills in regular order. With today's action, the future of the spending plan for Interior and EPA is in doubt.

Rep. Tom Cole (R-Okla.) said that the bill's progress was likely halted "just to keep a circus-like atmosphere to happen" and that the bill would likely come back to the floor at some point.

"It's a difficult bill always. It's a challenging bill ideologically. And it's a bill that will not get very many, probably no Democratic votes on," he said. "So if you start interjecting policies that are divisive inside the Republican conference as well."

The legislation overall would provide the Interior Department, EPA and related agencies with \$30.17 billion, or \$246 million below current spending levels and \$3 billion below President Obama's fiscal 2016 request for the agencies. EPA would take a hit of about 9 percent, or \$718 million, under the spending plan.

The bill includes slight funding boosts for Interior agencies, including the Bureau of Land Management and National Park Service, while funding for the Fish and Wildlife Service and the Forest Service -- which is housed within the Agriculture Department -- would remain roughly level.

"This spending bill is finally drowning under the weight of its own extremism," Friends of the Earth climate and energy campaigner Lukas Ross said in a statement. "Apparently the only thing that matters more to House Republican leadership than sacrificing American's air and water is defending the legacy of slavery. We can only hope that this bill stays dead and buried."

## **EPA:**

## **House Republicans and McCarthy trade barbs over science, regs**

Amanda Peterka, E&E reporter

Published: Thursday, July 9, 2015

Republican members of the House Science, Space and Technology Committee today pummeled U.S. EPA Administrator Gina McCarthy with questions over the science behind high-profile environmental regulations.

At the hearing, Chairman Lamar Smith (R-Texas) called the proposed Clean Power Plan to reduce carbon dioxide emissions from power plants an example of EPA relying on "secret science," "questionable" legality and "flawed analyses." He also singled out the agency's proposed update to the national ozone standard and the agency's final rule to change the scope of waters in the United States that receive automatic protection under the Clean Water Act.

Smith slammed EPA for its responses to requests for data from the House Science panel on the three rules.

"Producing documents in bits and pieces after months or years of delay are not the actions of an open and transparent administration," he said. "They are the actions of an agency and administration that has something to hide."

Other GOP members of the committee grilled EPA over the rules, arguing that EPA has not taken into account potential negative effects for American citizens.

The hearing prompted one lawmaker, Rep. Randy Hultgren (R-Ill.), to accuse EPA of acting like a "Palpatine" with states rather than a "partner," referring to the evil Emperor Palpatine from the "Star Wars" series.

Rep. Dana Rohrabacher (R-Calif.) suggested that EPA was using science that had been manipulated to achieve a "preconceived notion." He called McCarthy "naive" when the administrator said she did not know any specific examples of data manipulation happening, and he accused the agency of undermining the Constitution by not making more data publicly available.

Smith put in a plug for the "[Secret Science Reform Act](#)" passed by the House earlier this year that would bar EPA from issuing regulations that are not based on data that are "transparent or reproducible." The House earlier this week added a provision sponsored by Smith to its fiscal 2016 spending plan for the Interior Department and EPA that would prohibit funds from going toward finalizing any regulation based on research that is "secret" or held in contravention of the Freedom of Information Act.

McCarthy and Smith sparred over the proposed provisions, with the EPA administrator arguing that the agency cannot make information public that includes private data about American citizens and that the bill would force EPA to gather data it has "no authority to gather." Redacting personal data from health studies backing air regulations would be "impossible," she said.

"EPA totally supports both transparency as well as a strong and independent peer-reviewed science process," McCarthy said. "But the bill I don't think will get us there."

Smith also charged that EPA had failed to respond to all the committee's requests for documents and information. In response to what Smith described as a "pattern of obstructionism," earlier this week he offered another successful amendment to the spending plan that would cut the EPA offices of the administrator and congressional relations in retaliation.

McCarthy said that, since Jan. 1, EPA has received 10 letters and one subpoena from the House Science Committee. She said the agency had generated thousands of papers in response, written several letters, held 10 conference calls and communicated by email or phone with the committee 35 times.

Ranking member Eddie Bernice Johnson (D-Texas) defended the agency, calling the portrayal of EPA as a secret agency a "caricature."

"I have seen grocery carts of documents rolled into here on your agency," she told McCarthy.

Johnson slammed the hearing as "investigative theater" and said GOP members, as well as industry lobbyists, have a sole mission of attacking EPA's work.



"The chairman is trying to paint a picture of EPA being engaged in secret deals with the environmental community," she said. "The reality is that the Obama administration has done far more than the previous one to make sure that the water we drink and the air we breathe are clean."

The hearing came one day after the House voted to slow EPA's review of the national ozone standard. In November, EPA proposed to lower the ozone limit from 75 parts per billion -- set in 2008 during the George W. Bush administration -- to between 65 and 70 ppb. The House provision would bar EPA from updating the standard until 85 percent of counties have met the 2008 limit; critics have argued that a lower standard would come with high compliance costs.

McCarthy affirmed that EPA would move forward on the proposal and issue the final rule by a court-ordered deadline of Oct. 1.

"The science behind ozone is one of the most robust bodies of science that we have," she said.

## **APPROPRIATIONS:**

### **White House blasts Senate EPA, Interior spending bill on riders**

Hannah Northey, E&E reporter

Published: Thursday, July 9, 2015

A top White House official today blasted the Senate's fiscal 2016 spending plan for the Interior Department and U.S. EPA as a threat to the Obama administration's ambitious new climate and clean water goals, saying the language is riddled with problematic riders.

Office of Management and Budget Director Shaun Donovan told Senate Appropriations Chairman Thad Cochran (R-Miss.) in a letter that the proposed spending plan threatens to underfund EPA and Interior and would hamper key climate, ozone and water regulations.

Donovan reiterated that the White House has "serious concerns" with the language, and the president is unwilling to lock in sequestration spending levels. Senior presidential advisers, he added, are calling for President Obama to veto any legislation that would implement the current Republican budget framework that blocks critical investments.

The fiscal 2016 bill approved by the full Senate Appropriations Committee in June would provide EPA with \$7.6 billion, a cut of \$538.8 million below current funding levels. The Interior Department would see \$11 billion and the Forest Service \$5.12 billion under the bill (Greenwire, July 8).

Democrats, notably, voted against the bill in committee for what they called 11 "poison pill" riders aimed at environmental regulations, including language that would block EPA from regulating greenhouse gas emissions from livestock operations.

Donovan also outlined the administration's concerns with those policy riders, namely language that would prevent EPA from working with states to reduce carbon emissions from existing power plants under the Clean Power Plan or update the national ambient air quality standards for ozone.

Other riders, he said, would block the administration from clarifying the jurisdiction of the Clean Water Act, undermine federal environmental reviews and impede the use of the social cost of carbon in a number of upcoming rules.

"The administration believes that the Congress should consider appropriations bills free of ideological provisions," Donovan wrote. "The inclusion of these provisions threatens to undermine an orderly appropriations process."

The Senate bill, he said, would slash almost \$1 billion from EPA's overall budget and hamper implementation of the agency's clean water rule and Clean Power Plan, as well as efforts at the Department of the Interior to bolster climate resilience.

Donovan applauded Senate appropriators for boosting Bureau of Land Management funding but expressed disappointment that appropriators didn't accept the administration's proposed inspection user fee that would allow work to advance "at no net cost to taxpayers."

In the lower chamber, the House is nearing final passage of a controversial spending plan that would grant Interior, EPA and related agencies \$30.17 billion, or \$246 million below current spending levels and \$3 billion below Obama's fiscal 2016 request for the agencies. EPA would take a hit of about 9 percent, or \$718 million (*E&E Daily*, July 9).

## **CLIMATE:**

### **Obama admin launches new resiliency efforts**

Jean Chemnick, E&E reporter

Published: Thursday, July 9, 2015

The White House rolled out some new climate adaptation actions today together with a progress report tracking efforts the federal government has already taken to help climate-vulnerable communities prepare for warming.

Among the administration's new commitments is a \$11.8 million allocation for the Tribal Climate Resilience Program, which aims to help tribes cope with the effects of climate change on their land.

"These funds will help the American Indian and Alaska Native communities on the front lines of climate change prepare, plan and build capacity," Interior Secretary Sally Jewell said in a statement. The funds will help educate tribal leaders and develop adaptation plans.

U.S. EPA, the Energy Department and the National Oceanic and Atmospheric Administration joined with the Rockefeller Foundation and Cities of Service in creating a new AmeriCorps pilot program focused on climate adaptation and resiliency in low-income communities. The two-year program will initially operate in 12 cities.

"EPA understands that environmentally overburdened communities are often those most in need of resources to help prepare for and respond to climate change," EPA Administrator Gina McCarthy said in a statement.

The Rockefeller Foundation is also a partner in the extension of the Investment in the National Disaster Resilience Competition, which was started last July with \$1 billion in Housing and Urban Development funding. The foundation today pledged \$3.2 million in additional support for the program, which invites states and local communities to compete for funds to improve the efficiency of their low-income housing stock.

The Council on Environmental Quality also released a 18-page summary of federal agencies' actions to implement the recommendations of President Obama's State, Local and Tribal Leaders Task Force on Climate Preparedness. That panel was assembled in November 2013 and tasked with making suggestions about how the federal government could improve its coordination with non-national governments to promote climate resiliency.

Examples from the report include the White House's Preparedness Pilots program, launched last summer in an effort to better coordinate the way regional offices of federal agencies communicate with local governments in planning for the way warming may affect operations. The program targeted Houston, where NASA's Johnson Space Center coordinated with local communities. Colorado was the other original participant.

The document also referenced a new Federal Emergency Management Agency requirement that states incorporate climate change into their preparedness planning in order to be eligible for certain disaster mitigation grants. January's executive order sparked considerable pushback by governors who would be forced to explicitly acknowledge climate change's impact to their state in order to gain access to funding.

## **ENERGY POLICY:**

### **Pallone brings oil tax breaks, royalties into crude exports debate**

Published: Thursday, July 9, 2015

A key House Democrat today suggested that the oil industry should pay a price for ending the federal ban on crude oil exports in the form of more revenues, new fees or giving up long-standing tax breaks.

Rep. Frank Pallone (D-N.J.), the ranking member of the House Energy and Commerce Committee, said he was open to reconsidering the merits of a policy enacted four decades ago in light of changing energy dynamics, but laid out a laundry list of tough questions he said should be answered "before considering a wholesale dismantling" of the ban.

In addition to the potential effects on consumers, the environment and refiners, Pallone suggested Congress should revisit the oil industry's tax breaks, the royalty system and the industry's liability exemptions from the Superfund law.

"If we are going to export crude oil, shouldn't the American people receive some direct benefits in the form of increased revenues?" he said at the outset of an Energy and Power Subcommittee hearing on a bill by Rep. Joe Barton (R-Texas) ([H.R. 702](#)) to end the ban. "Shouldn't we consider a fee on exports to ensure that all Americans benefit from the exploitation and exporting of their natural resources?"

Republican backers of ending the ban are unlikely to consider any of the ideas put forth by Pallone, but his remarks suggest Democrats are unlikely to get behind to Barton's bill en masse without securing some sort of concessions.

Additionally, Pallone suggested that instead of ending the ban outright, Congress should consider incremental changes to crude export policies.

"We shouldn't embrace short-term gains without understanding the long-term costs of our decisions because we can't afford to get it wrong," he said. "To that end, maybe it would be wiser to explore some smaller, intermediate steps first -- such as easing restrictions on crude exports to our neighbors in Mexico -- before abruptly eliminating all our national security protections for this critical energy source."

The hearing comes as Energy and Commerce Republicans are considering whether to address the crude exports ban in the legislative package that the committee hopes to bring to the floor before the August recess.

Energy and Power Subcommittee Chairman Ed Whitfield (R-Ky.) talked up the national security and economic benefits of reversing the ban in his opening statement, citing a rash of recent studies that have concluded doing so would likely lower gasoline prices.

"Oil exports have the potential to be a jobs success story and a foreign policy success story, and H.R. 702 comes at a time when we can use a whole lot more of both," he said.

But full committee Chairman Fred Upton (R-Mich.) struck a more cautious tone in his opening statement.

"As I stated in a previous hearing with [Energy] Secretary [Ernest] Moniz, we need to get this policy right," he said, referencing a hearing last month when he said the issue was ripe for consideration. "We need to be certain that any actions taken don't have unintended consequences that negate the benefits."

While Barton has a handful of Democrats as co-sponsors of his bill, minority members of the Energy Committee raised multiple questions about the effects of allowing unrestricted exports.

Even Rep. Gene Green (D-Texas) -- a longtime ally of the oil industry -- signaled his opposition to ending the ban, citing the potential impact on refiners in his Houston district. "This is the best time to be in the refining business in Texas that I've ever seen," he said.

Instead of ending the ban, Green suggested he could support the creation of a system similar to the process the Energy Department employs to determine whether to allow exports of liquefied natural gas -- to ensure that "we don't price ourselves out of the market."

## **AIR POLLUTION:**

## Texas sues EPA -- again

Published: Thursday, July 9, 2015

The state of Texas is once again suing U.S. EPA, this time over how the state handles pollution from industrial plants during startups, shutdowns and equipment malfunctions.

Previously, emissions from these events have been exempted from overall pollution limits, but environmental groups have protested this policy.

In April 2014, a federal appeals court agreed with the environmentalists, and this May, EPA required Texas and 35 other states to review how they deal with the events.

Texas Attorney General Ken Paxton (R) said the state should not have to submit new plans to EPA by the November 2016 deadline because the federal agency already approved Texas' plans in 2010, before the environmental case was brought.

"The EPA's actions make it impossible for even the most carefully-regulated facilities to avoid costly penalties due to unplanned events out of their control," he said in a statement. "We will continue to fight back the EPA's ongoing efforts to encroach on Texas' effective management of our air quality standards."

Texas has sued EPA 21 times since President Obama took office. The current lawsuit comes nine days after Texas joined Louisiana and Mississippi in a lawsuit regarding the agency's Waters of the United States rule (Maleqwitz/Satija, Texas Tribune, July 8). -- AW

## COAL:

### Peabody secures self-bonding as Dems press for probe

Manuel Quiñones, E&E reporter

Published: Thursday, July 9, 2015

Wyoming regulators will let Peabody Energy Corp. provide its own financial assurances for three operations in the state, according to a company filing with the Securities and Exchange Commission.

The federal Surface Mining Control and Reclamation Act, which governs strip mining nationwide, allows companies to self-bond as long as they can meet certain financial requirements. States administer the details.

But coal's woes have led activists and taxpayer watchdogs to question whether companies have enough money to ensure mine cleanups even if they go bust (Greenwire, April 28).

Companies like Peabody, Alpha Natural Resources Inc. and Arch Coal Inc. have been under the microscope, with roughly \$2 billion in self-bonding in Wyoming earlier this year.

This week, Peabody -- the country's largest coal company -- told investors the Wyoming Department of Environmental Quality "has completed its review of self-bonding applications related to three mine permits that were under renewal, and reaffirmed self-bonding eligibility for all three permits."

A company's ability to self-bond can be essential to its bottom line, because using other forms of bonding can be more expensive or difficult to access. Peabody said it had roughly \$1.4 billion in self-bonding mostly in Wyoming, but also New Mexico, Indiana, Illinois and Colorado.

Last month, Michigan Rep. Debbie Dingell, top Democrat on the House Natural Resources Committee's Oversight and Investigations Subcommittee, called for a probe of self-bonding.

Dingell sent the letter, in part, as rebuttal to a Republican investigation of bonding for solar and wind projects following a Government Accountability Office review faulting Bureau of Land Management procedures (*E&E Daily*, June 25).

"I write to urge you to conduct a bipartisan investigation into the practice of self-bonding by coal companies, focusing on the use of subsidiaries to meet self-bonding requirements," she wrote to the subcommittee chairman, Rep. Louie Gohmert (R-Texas).

"Because Arch and Peabody are unlikely to be able to qualify on their own for self-bonding, they are exploiting vague regulatory language to use their subsidiaries to meet financial fitness thresholds."

Natural Resources Committee majority spokesman Parish Braden said, "There is a legal and regulatory framework in place for bonding coal projects. The ranking member's letter is rife with misleading innuendos, and it does not represent the committee's agenda."

Keith Guille, spokesman for the Wyoming DEQ, said this week that state regulators had not taken away any company's ability to self-bond since May.

That's when they decided Alpha Natural Resources Inc. no longer qualified. The company is appealing and pointing to West Virginia regulators still allowing it to self-bond (*Greenwire*, May 29).

Alpha may sell operations and lay off more workers to address ongoing market woes. Both Alpha and Arch are in danger of getting delisted from the New York Stock Exchange because of low share values.

Walter Energy Inc., which has also been in financial trouble, yesterday said NYSE was suspending its stock and moving to delist the company.

## **DEFENSE:**

### **Navy plans to teach all sailors, officers about energy efficiency**

Ariel Wittenberg, E&E reporter

Published: Thursday, July 9, 2015

The Navy has unveiled a plan for teaching every service member about the importance of energy efficiency.

The new Navy Energy Training and Education Plan offers a detailed strategy for instructing all its members -- from sailors to officers -- about how best to conserve energy.

Under the plan released last week, the Navy's general military training for all current sailors and recruits will be amended as early as fiscal 2016 to include education about where the Navy's fuel comes from, how it is used and how to conserve it. Similar education will be integrated into the service's personnel qualification standards course.

The training will also put the Navy's energy use in context by teaching personnel "why energy is critical to our national security and the Navy's mission."

Officers and department heads will be taught how to encourage energy efficiency within their command.

Midshipmen serving in specialized roles, like in the aerospace division, will receive training about how to conserve energy during their daily tasks. That training would include teaching sailors how to calculate fuel consumption rates and how to consider energy usage in tactical and policy decisions.

Ultimately, the Navy hopes that following energy training will become as pervasive and second-nature to service members as following safety protocols.

"Energy Training and Education, much like safety training, must be effectively disseminated to officers and enlisted [sailors] in such a way that it positively informs, affects behavior and changes culture throughout the Navy," the plan says.

The Energy Training and Education Plan comes at a time when the Navy has been increasing its emphasis on alternative energy and energy efficiency. In 2016, the Navy hopes to launch its Great Green Fleet powered solely on nuclear and biofuels, and aided by energy efficiency measures ([Greenwire](#), July 19, 2012).

Navy top brass described in a letter introducing the strategy how energy efficiency is more important now than ever as the military rebalances its focus to the Asia-Pacific.

The "vast fuel-draining distances" between ships and fuel sources mean conservation must be a top priority, the officials wrote.

"Our adversaries' use of asymmetric measures such as targeting our logistics supply chain and degrading our fuel supply, has significant potential to impact our ability to maintain persistent presence of forward-stationed forces capable of carrying out Navy's mission," the letter says.

## FEDERAL WORKFORCE:

### Union runs ad targeting OPM over data breach

[Kevin Bogardus](#), E&E reporter

Published: Thursday, July 9, 2015

The country's largest federal employee union has begun running ads targeting the Office of Personnel Management over the massive data breach that compromised private information for millions of federal employees.

The American Federation of Government Employees placed a [full-page ad](#) in *Politico* today that calls on OPM to disclose the scope of the attack as well as provide more help to government workers. Federal employees have grown increasingly frustrated with the response of the personnel office since the hack was disclosed early last month.

"Stop keeping employees in the dark about the data breach," the AFGE ad demands of OPM. "The American Federation of Government Employees expects OPM to do everything in its power to assist the millions of public servants whose personal information may have been compromised."

The union has also taken OPM to court. Last week, AFGE filed a class-action lawsuit against the agency ([Greenwire](#), June 30).

AFGE is not the only federal worker union bringing litigation against OPM. Yesterday, the National Treasury Employees Union filed its own lawsuit against the agency ([E&ENews PM](#), July 8).

Government workers have been left with unanswered questions since OPM disclosed the attack on its computer systems.

The agency has described the breach as two separate intrusions.

The first hack focused on employees' personnel files, which OPM estimates has affected 4.2 million current and former federal workers. The second attack targeted employees' background investigations. OPM has not given an estimate for the number affected by that intrusion, though 18 million Social Security numbers may have been compromised.

AFGE is demanding more from OPM in response to the breach, including disclosing how many were affected and what information was stolen.

Further, the union says the agency should provide lifetime credit monitoring services for individuals affected by the breach – not just 18 months, which is what OPM has offered so far.

In addition, the union calls for OPM to insure employees for any financial loss stemming from the data breach as well as direct agencies to allow their employees time at work to make calls and visits to protect their personal data.

## AIR POLLUTION:

## Canadian wildfires to blame for hazy American West

Published: Thursday, July 9, 2015

Smoke from wildfires in Canada has been spilling over the border, carried by the jet stream into the western and midwestern United States.

So far, the wildfires have destroyed hundreds of thousands of acres in Canada and have sent pollutants across the border, prompting air quality alerts in the Rocky Mountains in Colorado and in Minnesota.

"At one point, the entire state was under extreme air alert," Minnesota Pollution Control Agency spokesman Steve Mikkelsen said. "The readings we got on Monday, I had not seen a reading that high before in Minnesota. I don't know if it was a record, but it is very unusual for Minnesota."

In Denver, residents were hoping that predicted rains would wash away a haze that has lingered there.

In a state whose unofficial motto is having "300 days of sunshine a year," the haze has worried residents.

"It was so strange," said Zach Sigwart, who said he woke up yesterday and thought the sky looked "blurry."

"I didn't even know what it was," he said.

Canada has seen more wildfires this year, particularly in western provinces experiencing drought.

In Saskatchewan, there have been 582 wildfires this season, compared with 210 in the same period last year, according to government records. Evacuations have been ordered in 54 communities (Muskal/Kelly, [\*Los Angeles Times\*](#), July 8). --  
**AW**

## FLORIDA:

### Cities blast advocacy group for anti-solar filing

Published: Thursday, July 9, 2015

City officials in Florida are at odds over a decision by the Florida League of Cities, which represents more than 400 municipal governments, to file a legal brief urging the Florida Supreme Court to reject adding a proposed constitutional amendment before voters.

The amendment would let homeowners and businesses sell up to 2 megawatts of solar power and would prohibit the state from restricting barriers to the rooftop solar market.

Backed by groups like the Southern Alliance for Clean Energy, League of Women Voters and Christian Coalition, the measure is opposed by private and municipal utilities.

Florida is one of four states that do not allow consumers to sell solar energy back to the grid, in what's known as distributed generation.

Some cities, which are members of the Florida League of Cities, are calling out the group because they feel the measure would help municipalities.

In a letter to the group, 17 officials from 13 cities said the legal brief's arguments were "alarmist, unsupported and speculative" and blasted the group for failing to hold a formal vote of its members before filing it.

John Thomas, a spokesman for the group, said the decision was no different from previous efforts.

"The league has been filing briefs this way for 30 years now," Thomas said. "We try to make decisions that are in the best interest of our member cities" (Mary Ellen Klas, [Miami Herald](#), July 8). -- SP

## GERMANY:

### Tiny islands boom as offshore wind industry takes off

Published: Thursday, July 9, 2015

A tiny German archipelago in the North Sea is experiencing a rebirth thanks to offshore wind.

Heligoland is now home to offices for Blackstone Group LP, EON SE and RWE AG, all with 25-year leases, as they manage three new wind farms.

"Offshore is a blessing for our island," port manager Peter Singer said.

The tiny island that once had a population of 1,400 used to depend on day trippers for revenue.


Today, commercial tax revenue has risen by 50 percent in the last two years, and 100 wind workers have relocated to the island.

Living at Heligoland, located between the offshore wind farms and the mainland, means workers do not have to ride a 44-mile daily shuttle from the coast to the wind farms, nor do they have to sleep in hotel vessels near the farms.

"Heligoland is a very convenient accommodation platform for us, little more than an hour away by ship from the wind farm," said Hans Buenting, head of RWE Innogy (Brautlecht/Andresen, [Bloomberg](#), July 9). -- AW

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##### White House opens doors to eleventh-hour pleas on Clean Power Plan

Multiple state environmental regulators will meet Tuesday with senior Obama administration staff in an attempt to shape the final version of the forthcoming U.S. EPA rule to curb carbon emissions from power plants.

#### 2. REGIONS:

##### As Obama heads to Africa, his signature energy program there seeks firmer footing

KAMPALA, Uganda -- Power Africa, the Obama administration's effort to infuse billions of energy investment dollars across sub-Saharan Africa, is entering its third year focused on completing up to 30,000 megawatts of new generation projects while adding 60 million new grid connections across the world's least-electrified continent.

TODAY'S STORIES



3. FOOD SECURITY:

**Bumblebees in severe and rapid decline from climate change -- study**

4. POLITICS:

**White House describes climate change impacts as symptom of inequality**

5. RENEWABLE ENERGY:

**Commerce Department backs higher tariffs on Chinese solar panels**

6. RESEARCH:

**History shows that small temperature rise can cause massive polar ice melt, scientists say**

7. RELIGION:

**Calif. Gov. Jerry Brown, U.S. mayors to travel to Vatican for climate meetings with Pope Francis**

8. CONGRESS:

**Bipartisan bloc of senators protects U.N. Green Climate Fund, for now**

9. STATES:

**North American states, provinces sign climate agreement aimed at Paris**

10. OIL AND GAS:

**Exxon Mobil weighed potential climate change costs in early 1980s**

11. ADVOCACY:

**'We're addressing the wrong problem' -- scientists push for new policies to fight warming**

12. REGIONS:

**E.U. Parliament backs reform of world's largest carbon market**

13. AGRICULTURE:

**El Niño may depress Colombian coffee yield**

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
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14. CLEAN POWER PLAN:

***ClimateWire's* Holden discusses White House stakeholder meetings ahead of final rule release**

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1. REGULATION:

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Multiple state environmental regulators will meet Tuesday with senior Obama administration staff in an attempt to shape the final version of the forthcoming U.S. EPA rule to curb carbon emissions from power plants.

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TOP STORIES

2. OIL:

**China's stock market crash sends crude pricing on a wild ride**

3. HYDRAULIC FRACTURING:

**Unknowns about chemical, water impacts put Calif. at risk -- study**

4. UTILITIES:

**Fixed charges, net-metering policies will help dictate solar's future -- report**

---

ELECTRICITY

5. TECHNOLOGY:

**Pacific NW smart grid project called a success as it concludes**

6. SOLAR:

**Nev. net-metering battle heats up again**

---

OIL AND GAS

7. HYDRAULIC FRACTURING:

**Horizontal gas wells use the most water during fracking -- USGS**

8. WATER:

**Governors group outlines best practices for resource protection during shale development**

9. SAFETY:

**W.Va. governor creates panel to study drilling worksites**

10. UTILITIES:

**DOT moves to make natural gas lines safer**

11. DROUGHT:

**Calif. farmers eye fracking wastewater for irrigation**

12. TRANSPORT:

**Wash. crude by rail spurs worries over insurance coverage**

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***ClimateWire's* Holden discusses White House stakeholder meetings ahead of final rule release**

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Message

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**From:** Michael P. Walsh [mpwalsh@theicct.org]  
**Sent:** 1/1/2014 4:41:03 PM  
**To:** Michael P. Walsh [mpwalsh@igc.org]  
**Subject:** Car Lines  
**Attachments:** NSL20136.pdf

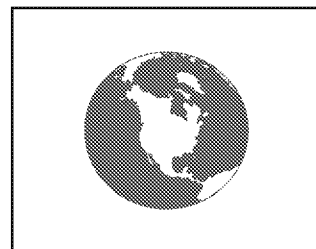
Dear Friends,

Attached is the final issue of Car Lines for 2013. While much has been accomplished this past year it remains clear that millions of people continue to die prematurely due to air pollution and the planet itself is facing greater and greater risks as carbon dioxide levels continue to creep up toward 400 PPM. Let us hope that our collective efforts make significant progress in addressing both of these challenges in 2014.

Happy New Year to all and best wishes for a safe and healthy 2014!

Michael

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# CAR LINES

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ISSUE 2013 6

DECEMBER 2013

|                                                                                                |    |
|------------------------------------------------------------------------------------------------|----|
| EUROPE .....                                                                                   | 4  |
| 1. New Policy Package Proposed To Clean Up Europe's Air .....                                  | 4  |
| Background .....                                                                               | 4  |
| Fixing The Light-Duty Diesel Emissions Problem .....                                           | 5  |
| 2. Diesel Vehicle PM10 Emissions Show Decline in London .....                                  | 7  |
| 3. Better Monitoring of Black Carbon Needed To Assess Health and Climate Change Impacts .....  | 8  |
| 4. Preliminary Bulldozer Emissions Assessment Leaked; Appears Weak .....                       | 9  |
| 5. EU Ministers Fail To Agree On Biofuels Reform .....                                         | 9  |
| 6. Report: EU Can Cut Import Dependence and Food Prices By Ditching Biofuels Mandates .....    | 10 |
| 7. Ministers Strip Targets from Alternative Fuels Proposal .....                               | 11 |
| 8. Serious Air Pollution Problems Sweeping Across Europe .....                                 | 11 |
| Paris Put on Air-Pollution Alert as Cold Snap Traps Diesel Fumes .....                         | 11 |
| Air Pollution Alert Raised In Barcelona .....                                                  | 12 |
| Macedonia Takes Precautions Against Air Pollution .....                                        | 13 |
| Air Pollution From Burning Coal Hits Bosnian Town .....                                        | 13 |
| 9. EU Moves Toward More Flexibility in 2020 Limits on Cars' Carbon Dioxide Emissions .....     | 14 |
| 10. EU May Extend Freeze on Limiting Foreign Flights' Emissions to 2020 .....                  | 15 |
| 11. EU Sets Provisional CO2 Auction Calendar For 2014 .....                                    | 16 |
| 12. European Parliament Approves 'Backloading' Plan to Boost Price of Carbon Allowances .....  | 16 |
| 13. Energy Groups Say EU Commission Lacks Climate Ambition .....                               | 17 |
| 14. Report Says Europe Cannot Afford To Give Up Climate Leadership .....                       | 18 |
| 15. Halving EU Emissions by 2030 Is Affordable, Says Britain .....                             | 19 |
| 16. Draft Paper Indicates That Merkel and SPD Set Goal for Reducing CO2 Emissions .....        | 19 |
| 17. UK Study Finds Green Buses May Not Improve Air Quality As Much As Previously Thought ..... | 20 |
| 18. New Car GDI Engines Emit More Harmful Particles than Predecessors: Study .....             | 20 |
| 19. EEA Warns of Aviation's Increasing Emissions .....                                         | 21 |
| 20. Eastern States Need €6.5bn to Upgrade Their Large Combustion Plants .....                  | 22 |
| 21. First Decisions Emerge On Industrial Emissions Directive Transitional Plans .....          | 22 |
| 22. Consumer, Green Groups Voice Fears Over EU-U.S. Trade Deal .....                           | 23 |
| NORTH AMERICA .....                                                                            | 25 |
| 23. API, Emissions Control Makers Spar Over 'Tier III' Low-Sulfur Fuel Mandate .....           | 25 |
| 24. EPA FY14-18 Plan Targets Heavy Duty Vehicle GHGs, Off-Road Emissions .....                 | 26 |

|     |                                                                                          |    |
|-----|------------------------------------------------------------------------------------------|----|
| 25. | U.S. 2012 Model Vehicles Hit Record Fuel Efficiency: EPA .....                           | 27 |
| 26. | As Gasoline Consumption Declines, U.S. Proposes Biofuel Mandate Cut .....                | 28 |
| 27. | Advanced Biofuels Could Remove Blend Wall, Senate Panel Told .....                       | 29 |
| 28. | Renewable Fuel Backers Try To Change EPA's Mind at Hearing .....                         | 31 |
| 29. | Refiners Fight 2013 RFS in Court as Senators Debate Program's Future .....               | 31 |
| 30. | Emissions Study Finds Advanced Diesels Extremely Clean .....                             | 32 |
| 31. | Truckers Seek EPA Overhaul of California Mobile Source Air Rule Waivers.....             | 33 |
| 32. | California Launches Proceeding To Bolster Alternative-Fuel Vehicle Sales .....           | 34 |
| 33. | Northeast States Urged To Adopt California's Clean Car Rule Incentives .....             | 36 |
| 34. | Advisory Panel Suggests EPA Expand Truck Efficiency Program to Other Sectors.....        | 37 |
| 35. | EPA and DOE Release Annual Fuel Economy Guide with 2014 Models.....                      | 39 |
| 36. | US Questions EU's Stepwise Approach to Climate Deal .....                                | 39 |
| 37. | Canada Launches New Attack Against EU's Proposed Dirty Oil Rules .....                   | 40 |
| 38. | D.C. Circuit Scraps Truck NOx Control Waiver Rule .....                                  | 41 |
| 39. | U.S. Northeast States Ask EPA to Crack Down On Midwest Pollution .....                   | 42 |
| 40. | U.S. Justices Hint at Support for EPA Cross Border Air Pollution Regulation.....         | 43 |
| 41. | EPA Tells Court U.S. Mercury, Toxics Rule Is Legally Justified .....                     | 46 |
| 42. | Ontario Lags in Curbing Greenhouse Gases from Transportation Fuels, Official Says .....  | 47 |
| 43. | Ontario to Announce Lower Fees for Drive Clean Vehicle Emissions Tests .....             | 47 |
| 44. | Recent Developments Regarding Keystone Pipeline .....                                    | 48 |
|     | Canada Short On Time for Climate Change Concession .....                                 | 48 |
|     | House Democrats Urge Delay for NEPA Study .....                                          | 49 |
|     | Canadian Envoy Says Growing Rail Traffic from Oil Sands Should Sway Critics .....        | 49 |
| 45. | Industry Warns Pending Court Ruling May Undo Consent Decree Certainty .....              | 50 |
| 46. | EPA Urged To Deny Mercedes' Request for 'Off-Cycle' Vehicle GHG Credits .....            | 51 |
| 47. | Obama Doubles Agencies' Renewable Energy Goal .....                                      | 52 |
|     | ASIA-PACIFIC .....                                                                       | 53 |
| 48. | Recent Developments in China.....                                                        | 53 |
|     | China Launches Cleaner Gasoline Standards.....                                           | 53 |
|     | China Likely to Meet Reduction Targets for Key Pollutants in 2013, Ministry Says .....   | 54 |
|     | China's Current Air Pollution Is So Bad, It Is Visible From Space! .....                 | 54 |
|     | Eight Chinese Cities Fined For Air Pollution .....                                       | 55 |
|     | Tianjin Curbs Purchase of New Vehicles.....                                              | 56 |
|     | Biden Reaffirms Cooperation with China on HFCs, Clean Heavy Duty Diesels.....            | 57 |
|     | More Emission Controls Urged in China .....                                              | 58 |
|     | U.S., China Pledge to Cooperate On Marine Emissions, Soil Pollution, Shale .....         | 61 |
|     | China Tells Pilots to Improve Landing Skills to Deal With Beijing Smog .....             | 62 |
|     | Beijing to Buy New Buses to Clear City Smog.....                                         | 63 |
|     | China to Close Schools, Stop Outdoor Activities During Heavy Smog.....                   | 63 |
|     | Schools Close In Smog-Enshrouded Eastern China .....                                     | 64 |
|     | Shanghai Air Pollution Wanes after Smog Forces Cancellations .....                       | 64 |
|     | China State Media Under Fire for Mentioning Benefits of Smog .....                       | 65 |
|     | China's Government Stresses Transparency As Localities Take Actions .....                | 66 |
|     | Light-Vehicle Sales Jump 16% in November; Annual Sales to Exceed 21 Million .....        | 67 |
|     | WTO Panel Affirms Ruling Against Chinese Export Restrictions on Rare Earths .....        | 69 |
|     | China Sets HCFC Production Quotas for 2014 to Comply With Montreal Protocol .....        | 70 |
|     | China Says Poorly Prepared To Fight Impact of Climate Change.....                        | 70 |
|     | China's Public Security Ministry to Help With Crackdown on Environmental Crimes.....     | 71 |
|     | S. Korea, China to Discuss Ways to Cut Air Pollution .....                               | 72 |
|     | China's Smog Threatens Health of Global Coal Projects .....                              | 72 |
|     | To Tackle Pollution, China to Drop Pursuit of Growth at All Costs .....                  | 73 |
|     | China, Norway May Team Up In Search for Arctic Oil.....                                  | 75 |
|     | Beijing Slashes Car Sales Quota in Anti-Pollution Drive .....                            | 75 |
|     | Chinese Automakers Fight Proposal to Ease JV Ownership Rules .....                       | 76 |
| 49. | Hong Kong Finds Switch to Cleaner Fuels Has Flaws .....                                  | 77 |
| 50. | Hong Kong to Measure Air Quality Impacts on Health Amid Growing Pollution Concerns ..... | 78 |

|     |                                                                                           |     |
|-----|-------------------------------------------------------------------------------------------|-----|
| 51. | High Diesel Engine Demand, Exports Drive Fiat into Profits in India .....                 | 78  |
| 52. | Indian Capital Blanketed In Thick Smog, Transport Disrupted .....                         | 79  |
| 53. | Indian Environmental Activists up the Ante as Government Struggles to Enforce Rules ..... | 81  |
| 54. | India's Negotiator Says Climate Treaty Talks 'Partial Success' .....                      | 82  |
| 55. | Japan's New CO2 Goal Dismays U.N. Climate Conference.....                                 | 84  |
| 56. | Gas Use Slows Diesel Demand in Thailand .....                                             | 85  |
|     | MIDDLE EAST .....                                                                         | 85  |
| 57. | Israel Approves Compressed Natural Gas for Transport Use to Lower Costs, Emissions.....   | 86  |
|     | SOUTH AMERICA .....                                                                       | 86  |
| 58. | Peru Uses Climate Twist to Lure Tourists to Shrinking Glacier .....                       | 86  |
|     | CARRIBEAN ISLANDS.....                                                                    | 88  |
| 59. | Ultra-Low Sulfur Diesel Launched In Barbados .....                                        | 88  |
|     | GENERAL .....                                                                             | 89  |
| 60. | Honda Accord Named Green Car of Year at L.A. Auto Show .....                              | 89  |
| 61. | Greenhouse Gas Volumes Reached New High in 2012: WMO .....                                | 90  |
| 62. | Nitrous Oxide Emissions Could Double By 2050 -UNEP .....                                  | 91  |
| 63. | Warming Seen Worse As Nations Fail To Meet Carbon Goals .....                             | 92  |
| 64. | Oceans Suffer Silent Storm of Acidification: International Study .....                    | 93  |
| 65. | 2013 Is Seventh Hottest Year, Rising Seas Worsen Typhoon .....                            | 94  |
| 66. | U.N. Climate Panel Corrects Carbon Numbers in Major Report.....                           | 94  |
| 67. | UN Draft Stresses Risk Of Global Warming, From Economy to Health .....                    | 95  |
| 68. | China, India Split with Other Developing Countries over Wording in UN Summit Text .....   | 96  |
| 69. | Short-Cut to Produce Hydrogen Seen As Step to Cleaner Fuel.....                           | 98  |
| 70. | Arctic Thaw Tied To European, U.S. Heatwaves and Downpours: Study .....                   | 98  |
| 71. | Temperature Limit Too High To Avoid Climate Change: Study .....                           | 99  |
| 72. | First 33 Cities Selected to Receive Grants to Boost Resilience to Global Warming .....    | 100 |
| 73. | Newly Discovered Greenhouse Gas '7,000 Times More Powerful Than CO2' .....                | 101 |
| 74. | ExxonMobil Forecasts 35% Increase in Global Energy Demand By 2040 .....                   | 102 |
| 75. | Air Samples at Cruise Ship Docks Worldwide Find Dangerous Levels of Deadly Soot .....     | 102 |
| 76. | Diesel Fumes Again Linked To Increased Lung Cancer Risk .....                             | 103 |
| 77. | EU, OECD Countries Lead Transition to Sustainable Energy, Index Shows .....               | 104 |

## EUROPE

### 1. New Policy Package Proposed To Clean Up Europe's Air

The human toll for poor air quality is worse than for road traffic accidents, making it the number one environmental cause of premature death in the EU. It also impacts the quality of life due to asthma or respiratory problems. The Commission has responded with a clean air policy package which updates existing legislation and further reduces emissions from industry, traffic, energy plants and agriculture. The direct costs to society from air pollution in Europe, including damage to crops and buildings, amount to about €23 billion per year, according to the European Commission. The benefits to people's health from implementing the package are around €40 billion a year, over 12 times the costs of pollution abatement, which are estimated to reach € 3.4 billion per year in 2030.

The package has a number of components including:

- A new Clean Air Program for Europe with measures to ensure that existing targets are met in the short term, and new air quality objectives for the period up to 2030. The package also includes support measures to help cut air pollution, with a focus on improving air quality in cities, supporting research and innovation, and promoting international cooperation
- A revised National Emission Ceilings Directive with stricter national emission ceilings for the six main pollutants , and
- A proposal for a new Directive to reduce pollution from medium-sized combustion installations, such as energy plants for street blocks or large buildings, and small industry installations.

By 2030, and compared to business as usual, the clean air policy package is estimated to:

- avoid 58 000 premature deaths,
- save 123 000 km<sup>2</sup> of ecosystems from nitrogen pollution (more than half the area of Romania),
- save 56 000 km<sup>2</sup> of protected Natura 2000 areas (more than the entire area of Croatia) from nitrogen pollution,
- save 19 000 km<sup>2</sup> forest ecosystems from acidification.

Health benefits alone will save society €40-140 billion in external costs and provide about €3 billion in direct benefits due to higher productivity of the workforce, lower healthcare costs, higher crop yields and less damage to buildings. The proposal will also add the equivalent of around 100 000 additional jobs due to increased productivity and competitiveness because of fewer workdays lost. It is estimated to have a positive net impact on economic growth.

The proposal is based on the conclusions of a comprehensive review of existing EU air policy. It comes after extensive consultations that found broad support for EU-wide action in this area.

### Background

Many EU Member States are still falling short of agreed EU air quality standards, and the air pollution guidelines of the UN World Health Organization are generally not being met. While EU



air quality policy has brought significant reductions in concentrations of harmful pollutants such as particulate matter, sulfur dioxide (the main cause of acid rain), lead, nitrogen oxides, carbon monoxide and benzene, major problems remain. Fine particulates and ozone, in particular, continue to present significant health risks and safe limits for health are regularly exceeded. EU air quality standards and targets are breached in many regions and cities, and public health suffers accordingly, with rising costs to health care and the economy. The total external health-related costs to society from air pollution in Europe are estimated to be in the range of €330-940 billion per year. The situation is especially severe in urban areas, which are now home to a majority of Europeans.

The measures in this new strategy build on those presented in the 2005 Thematic Strategy on Air Pollution and will deliver further progress towards long term objectives of the 6th and 7th Environmental Action Programs. The strategy also contains non-regulatory support measures to enhance capacity and co-operation at all political levels, with priority areas including urban air pollution, research and innovation, and the international dimension of air policy.

The ongoing substantial breaches of air quality standards can be resolved in the short to medium term by effective implementation of existing EU legislation, notably on emissions from light-duty diesels<sup>1</sup> and complementary measures at national level. Transposing the amended Gothenburg Protocol agreed in 2012 would also be needed to align the EU regulatory framework to the EU's international commitments. The aim of these measures is to achieve full compliance with existing air quality standards by 2020 at the latest.

### **Fixing the Light-Duty Diesel Emissions Problem**

According to the Commission, real-world NO<sub>x</sub> emissions from Euro 5 cars type-approved since 2009 now exceed those of Euro 1 cars type-approved in 1992, and are in the region of five times the limit value. This has a major impact on concentrations of NO<sub>2</sub>, ozone and secondary particles across Europe.

In its CARS 2020 Communication, the Commission noted the shortcoming of the current procedures and committed to a new test procedure in the type-approval framework to assess NO<sub>x</sub> emissions of light-duty vehicles under real-world driving conditions. Real driving emissions (RDE) of NO<sub>x</sub> will be recorded and communicated as from the mandatory Euro 6 dates (in 2014) and, no more than three years later the RDE procedure will be applied for type approval, together with what are intended to be robust not-to-exceed (NTE) emission limits. This is intended to ensure the substantial reduction of real-world NO<sub>x</sub> emissions required to achieve Euro 6 NO<sub>x</sub> emission limits under normal driving conditions.<sup>2</sup>

Further tightening of EU vehicle emissions standards beyond Euro 6 is not currently considered necessary to achieve new air policy targets for 2025 and 2030. Rather, measures supporting sustainable urban mobility will help target localized transport problems.

The main responsibility for resolving localized compliance problems lies with Member States, where there is substantial scope for enhanced national and local action. The current assessment

---

<sup>1</sup> I.e. implementation of the Euro 6 vehicle controls under Regulation (EC) 715/2007 so as to ensure that real world emissions of nitrogen oxides (NO<sub>x</sub>) from light-duty diesel vehicles are close to the limit values in the legislation.

<sup>2</sup> Investigation and repression of some of the possible causes of these deviations (poor maintenance, cycle beating at certification, aftermarket defeat devices that eliminate or bypass pollution reduction equipment) should also be enforced, as this would allow to reduce emissions from high emitters without waiting for a new generation of vehicles to enter into service.

and management options available will be supplemented by the measures on sustainable mobility in the Communication 'Together towards competitive and resource-efficient urban mobility', in particular those on Sustainable Urban Mobility Plans and on Urban Vehicle Access Regulations. Guidelines for retrofit programs and for promoting the uptake of advanced technology options will be developed, building on the "Super Ultra Low Emission Vehicle" concept developed in the U.S.A. The latter concept will also be expanded to other sectors to support Member States with compliance problems. To improve public information on the performance of products and the success of national and local air quality action, new public-oriented indicators will be developed to track progress in mitigating air pollution nationally and locally. To facilitate consumer choice, citizens will also be informed of the real-world vehicle emissions measured according to the new test cycle (from the Euro 6 deadlines onwards).

The air policy review indicated that it is not appropriate to revise the Ambient Air Quality Directive now. Policy should focus rather on achieving compliance with existing air quality standards by 2020 at the latest, and on using a revised NEC Directive to bring down pollution emissions in the period to 2030. Such emission reductions will in turn drive down background concentrations across Europe, according to the Commission, bringing major benefits for public health and ecosystems.

The Ambient Air Quality Directive remains a key policy if the EU is to ensure future concentrations below the WHO guideline values everywhere. It will be kept under review, with a view to revision once the NECD has set background concentrations on the right downwards track.

The long-term EU objective for air pollution implies no exceedances of the World Health Organization guideline levels for human health<sup>3</sup> (which may also develop over time) and no exceedances of the critical loads and levels which mark the limits of ecosystem tolerance.<sup>4</sup> The new strategy pursues two priorities in parallel: to achieve full compliance with existing legislation by 2020 at the latest, and to set a pathway for the EU to meet the long-term objective.

Delivering the above targets will require a combination of regulatory and non-regulatory measures. The measures will also focus on delivering benefits for climate change mitigation by targeting those pollutants that contribute significantly to climate impacts as well as air pollution (such as the "black carbon" component of particulate matter) or promoting measures that tackle air pollutants and climate gases simultaneously (such as ammonia and nitrous oxide).

For 2030 the proposal includes<sup>5</sup> cost-effective national emission reduction obligations for the four original air pollutants (SO<sub>2</sub>, NO<sub>x</sub>, non-methane VOCs, and NH<sub>3</sub>), and for two new ones: primary PM<sub>2.5</sub> (fine particulate matter, which has major health impacts) and CH<sub>4</sub> (methane, a key short-lived climate pollutant). In implementing the PM<sub>2.5</sub> reductions, particular emphasis will be placed on reduction of black carbon (BC), the other major short-lived climate pollutant. The CH<sub>4</sub> and BC measures will provide direct climate co-benefits whilst also preparing the ground for international

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<sup>3</sup> Strictly speaking, there is no known safe level of exposure for some pollutants such as particulate matter, but WHO guidelines are set at low risk levels and regularly revised.

<sup>4</sup> Critical loads and levels, i.e. the maximum levels the ecosystem can tolerate without degrading.

<sup>5</sup> Action on Short Lived Climate Pollutants (SLCPs) was specifically examined. While a separate ceiling for black carbon (BC) is not considered currently appropriate, the EU and Member States are to prioritize measures with an impact on BC in meeting their PM<sub>2.5</sub> reduction obligations. The new methane ceiling will exploit the substantial potential for low- or zero-cost reduction, thus complementing the VOC and NO<sub>x</sub> reductions required to reduce the concentrations of ozone both in the EU and internationally. These actions are aimed also at promoting international action on SLCP to reduce hemispheric air pollution.

action. Flexibility arrangements are proposed, to allow for uncertainties regarding emission inventory methods and the future energy mix without undermining the integrity of the instrument.

While the NEC Directive gives Member States maximum flexibility to identify appropriate measures, many stakeholders requested support through targeted EU source controls such as revision of the Non-Road Mobile Machinery Directive, which will generate substantial benefits by extending the capacity range and machinery types covered, and by aligning controls with the Euro VI heavy-duty limits.

The main gap in EU source legislation (other than agriculture) concerns emissions from combustion installations of a thermal capacity between 1 and 50 MW, which are important also to avoid tradeoffs between air quality and renewables policy (notably related to increased biomass use). The proposed Directive on the limitation of emissions of certain pollutants into air from medium combustion plants (MCP) is intended to provide an effective instrument to further reduce pollution of NO<sub>x</sub>, SO<sub>2</sub> and PM through appropriate limit values for new and existing installations, coupled with a simple registration scheme. This Directive will hopefully help deliver a significant part of member States' emission reduction obligations.

To achieve the new air policy targets for 2030, the proposed NEC Directive requires ammonia reductions of 27%. Options for further source controls at EU level will be examined, including a general requirement for a nutrient balance in the application of fertilizer, specific controls on manure management, and labelling and other provisions for inorganic fertilizers (in the context of the ongoing review of the Fertilizers Regulation). Many of these measures will also help reduce emissions of nitrous oxide, a potent greenhouse gas regulated under the Kyoto Protocol.<sup>6</sup>

The 2012 revision of the Directive on the Sulfur Content of Liquid Fuels<sup>7</sup> ensures that the most cost-effective measures to reduce sulfur emissions from shipping in the EU are already on the way, with the SECA standard of 0.1% sulfur content in the Baltic and North Sea from 2015, and the global standard of maximum 0.5% sulfur in all EU waters from 2020. However, previous analysis shows that emissions from shipping will continue to impact air quality on land,<sup>8</sup> and that reductions from the sector could be cost-effective. Considering the international character of shipping and Europe's dependence on it, preference must always be given to policy development at the international level (IMO), such as designation of NO<sub>x</sub> Emission Control Areas and enforcement of NO<sub>x</sub> emission standards already agreed by the IMO. The proposal for a revised NEC Directive aims to incentivize reductions from shipping, by allowing them to be offset against the reduction obligations for land-based sources for 2025 and 2030.

Reductions in real-world emissions from light-duty diesels and progress in compliance with the Ambient Air Quality Standards will be tracked closely through the existing reporting mechanisms.

## **2. Diesel Vehicle PM<sub>10</sub> Emissions Show Decline in London**

Emissions of particulate matter PM<sub>10</sub> from diesel exhausts in London have shown a 'significant decline' in recent years, according to the Department for the Environment, Food and Rural Affairs

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<sup>6</sup> UNEP has estimated that, globally, N<sub>2</sub>O emissions equivalent to 0.8 gigatons of CO<sub>2</sub> could be avoided every year by 2020, amounting to 8% of the 'emissions gap' between reduction pledges made by countries and the action needed to keep global temperature rise below 2°C.

<sup>7</sup> Directive 2012/33/EU.

<sup>8</sup> In the EU, in 2005 NO<sub>x</sub> and SO<sub>2</sub> emissions from international shipping were equivalent to about 25% and 21% of the land-based emissions. While NO<sub>x</sub> emissions from land sources are expected by 2030 to be 65% lower, on business as usual shipping emissions would reduce only 2%.

(Defra). Figures revealed by Defra minister Dan Rogerson show that diesel emissions for black cabs, diesel cars, heavy goods vehicles (HGVs), buses and coaches have all fallen over the ten years from 2002 to 2011.

The figures were revealed in response to a written parliamentary question from Labor MP for Poplar and Limehouse, Jim Fitzpatrick, who asked for information on the level and trend in particulate emissions from diesel vehicles in central and Greater London. Mr. Rogerson answered that, according to the most recent data based on annual estimates by the National Atmospheric Emissions Inventory (NAEI), there has been a 'significant decline in diesel exhaust emissions over this period'. In total, exhaust PM10 emissions from a range of diesel vehicles in central London have declined from 0.107 kilotons in 2002 to 0.038 kilotons in 2011, with the biggest reduction appearing to come from buses and coaches. And, figures for Greater London show that overall there has been an even larger decline in PM10 emissions from diesel vehicles from 1.209 kilotons in 2002 to 0.540 kilotons in 2011.

However, the data suggests that the biggest fall in PM10 emissions appears to have come from diesel light goods vehicles.

Furthermore, Mr. Rogerson also said he expected to have new projections for when the UK is likely to comply with EU air quality standards in 2014.

Mr. Fitzpatrick asked the Defra minister when London was expected to comply with EU air quality legal requirements; currently, London is expected to be compliant with limit values for PM2.5 by 2020 when the legal requirements for fine particulates come into force, but it is not expected to meet EU limits for nitrogen dioxide until 2025. And, the minister said that although central London is compliant with the ozone target value for health, it currently exceeds the non-mandatory, long-term objective for this pollutant, adding that 'no projections are available for when we expect it to meet this objective'.

Meanwhile, London is compliant with EU limits on the pollutant benzo[a]pyrene, according to Mr. Rogerson, but 'does not currently meet the non-mandatory national objective for this pollutant as set out in the Air Quality Strategy 2007'.

### **3. Better Monitoring of Black Carbon Needed To Assess Health and Climate Change Impacts**



Black carbon is an air pollutant which harms human health and can contribute to climate change – so cutting emissions may have many benefits. The European Environment Agency (EEA) has recently published a report<sup>9</sup> on the measurement of black carbon in the air which looks at the monitoring networks currently measuring black carbon, measurement methodologies and how this data is used.

<sup>9</sup> 'Status of black carbon monitoring in ambient air in Europe'

As the effects of this pollutant have become better understood in recent years, it is increasingly seen as an important target of environmental control. The study is intended to encourage more comprehensive monitoring of this pollutant, which is currently patchy.

Black carbon is the sooty part of particulate matter (PM) formed by the incomplete combustion of fossil fuels and biomass. It is mostly emitted by vehicles, non-road mobile machinery such as forestry machines, ships, and coal or wood burning stoves in homes. Another important source is open biomass burning including forest fires and agricultural waste burning.

Of all air pollutants, PM is the most harmful to health in Europe. The black carbon part of PM is particularly harmful according to the report as it represents a mixture of very fine, partly carcinogenic particles, small enough to enter the bloodstream and reach other organs.

There is currently a lively debate about whether reducing this pollutant could have significant gains in reducing climate change, with a recent study suggesting that black carbon's effect on the climate is more potent than previously thought. In the atmosphere the carbon-containing pollutant effectively absorbs solar radiation leading to a warming of the atmosphere. When it settles on snow or ice, the darker color absorbs more heat, accelerating melting.

#### **4. Preliminary Bulldozer Emissions Assessment Leaked; Appears Weak**

A leaked Bulldozers emissions impact assessment shows the scope is likely to be more limited than expected. Further it is not included in the package of policy measures to combat air pollution just released (see story above). A review of the 1997 directive covering non-road diesel machines, which include bulldozers, excavators, mobile generators and barges, is now due. It was assumed that this would be included in the air quality package, but the proposal has been held up within the Commission and is now not expected until March or April of next year.

The impact assessment also does not assess ultra-fine particles from the largest diesel engines greater than 560kw. These include mobile generators located in large construction sites which account for more than 10% of the land-based non-road mobile machinery emissions, and are expected to contribute to 20% in 2020.

The ambition of the assessment also appears limited. The most ambitious scenario it examines is reportedly less stringent than the minimum limits set for road vehicles – the Euro VI standards. Campaigners have also complained that the assessment is using an outdated method from 2008 for estimating the cost of air pollution and also does not take into account recent scientific evidence such as a report last year from the World Health Organization which demonstrated a link between diesel emissions and cancer.

#### **5. EU Ministers Fail To Agree On Biofuels Reform**

Energy ministers have failed to reach a deal on reforming the EU's biofuels laws, with some pushing for a more generous regime for conventional, food-based fuels, while others argued for a more radical plan than that currently on the table. The EU executive's 2012 proposal to limit the use of food-based biofuels is therefore likely on hold until at least the second half of 2014, as neither MEPs nor member states have managed to agree internal positions with which they could negotiate with each other.

Member states' widely divergent views on the issue after almost six months of negotiations means an uphill struggle for the incoming Greek presidency, which must now take over responsibility for forging a common council position. The Lithuanian presidency's proposed compromise was to cap the amount of food-based biofuels that could count towards the EU's renewable energy target for transport fuels at 7%, up from 5% under the European Commission proposal. But a blocking minority of countries could not agree to this.

Denmark, the Netherlands, Belgium and Luxembourg pushed for a tighter limit on food-based fuels, while Poland and Hungary wanted the opposite. Germany, Belgium and Portugal reportedly expressed concern about double-counting provisions, which would have watered down the EU's overall 20% renewables target.

Climate commissioner Connie Hedegaard said an "unholy alliance of the most and least ambitious" had "blocked progress". Waiting for lawmakers to make up their minds means uncertainty for the biofuel industry, she said.

Campaign group T&E said the rejected 7% plan would have caused an additional 400 million tons of CO<sub>2</sub> to be emitted relative to the commission's proposal, "equivalent to adding nine million extra cars to Europe's roads by 2020". And the "mere reporting" of indirect land-use change emissions (ILUC), as set out in the compromise text, "would have allowed biofuels that produce more emissions than conventional fuels to still count towards the [transport target]".

## **6. Report: EU Can Cut Import Dependence and Food Prices By Ditching Biofuels Mandates**

If Europe were to rule out its support of biofuels by 2020, the region could lower its net imports of grain and oilseeds by up to 27 million tons, remarkably reducing its dependence on foreign goods. Global food prices could also drop significantly. These are the main findings of a new report<sup>10</sup> by Oxfam and the Heinrich Böll Foundation. "Fixing the EU's misguided biofuel policy is long overdue. Political support for biofuels made from crops such as grain or oilseeds should run out over the next years", explains one of the authors of the study, Prof. Dr. Harald Grethe of the University of Hohenheim

According to the report, if the EU were to drop its current biofuel policy by 2020, the global prices of plant oils would drop by 16 percent compared to a situation with the current biofuel mandates remaining in place. It would also see oilseed prices fall by around 10 percent, with wheat prices also decreasing by about 4 percent.

"Less biofuels would mean more food security. Cutting down the cost of basic foodstuffs would certainly help those living in poverty", explained Marita Wiggerthale, agricultural expert with Oxfam.

"If the EU continues to support biofuels, we'll be importing 85 percent of the resources required for biofuels production in the future. This would mean a huge increase in import dependency", said Christine Chemnitz, adviser for international agricultural policy at the Heinrich Böll Foundation.

In relation to climate change, the report issues a scathing assessment of both biofuels and the related European policy: "The main argument for biofuels, namely their attractiveness as a low-

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<sup>10</sup> Biofuels: Effects on Global Agricultural Prices and Climate Change

carbon and thus more climate friendly alternative to fossil fuels, is simply not right if we include the indirect land use change and intensification effects “, said Ms. Chemnitz.

## **7. Ministers Strip Targets from Alternative Fuels Proposal**

MEPs and member states could be set for heated talks on how to boost the refueling infrastructure for alternative fuels after transport ministers confirmed their opposition to targets at a recent meeting. The European Commission’s proposal from January set national and EU-wide targets for electric, hydrogen, and natural gas charging points for road vehicles and ships. The parliament’s transport committee backed this idea and suggested the targets be expanded to all modes of transport, including aviation.

However, some member states feared the targets would be a major burden and several large countries reportedly blocked any consideration of targets, including the Czech Republic, Germany, Hungary, Spain and the UK. There was also concern over the imposition of standard rules given the considerable variation between countries’ current infrastructure and national ambitions.

The recently adopted formal position says member states should develop their own targets to apply from 2030. Targets for hydrogen refueling points should be optional and member states need only install electric charging points in ports if there is demand and the benefits outweigh the costs. The ministers backed the establishment of national policy frameworks on alternative fuel infrastructure, common technical specifications to make all recharge and refueling points interoperable, and the need for rules on information for consumers. “Giving full flexibility... should give member states enough time to carry out comprehensive analyses of their situations, establish accurate figures and determine targets that will provide realistic signals to the market,” they said in a statement.

But seven member states are understood to have had regrets about the dilution of the commission’s proposal, especially with regard to electric cars. This group includes Denmark, France, Italy, the Netherlands and Belgium.

Cecile Toubeau of NGO T&E says the council position is a disappointment and rather contradictory given some countries’ public stance on alternative fuels. Germany, for instance, has pledged have a million electric cars on the road by 2020. Without targets, there is not likely to be any investment, she says, adding that the commission might have been better off setting a baseline target and concentrating on the vehicle infrastructure in urban areas and along the TEN-T trans-European network where funding is available for improvements.

## **8. Serious Air Pollution Problems Sweeping Across Europe**

### **Paris Put on Air-Pollution Alert as Cold Snap Traps Diesel Fumes**

Paris was put on an air-pollution alert recently as cold weather entrapped diesel fumes, leading to the most severe smog in the French capital since 2007. The pollution index reached the highest of five levels for fine particulates, according to Airparif, which monitors air quality. The government urged reduced auto speeds on main roads and asked people to refrain from driving diesel vehicles lacking proper filters and from lighting up wood fireplaces.

The pollution alert may reignite debate over taxes on diesel fuel, which in France are lower than for gasoline. Environmental groups have urged the government to align the levies while carmakers such as PSA Peugeot Citroen (UG) have resisted the move. “Irresponsible policies”

that encourage the use of diesel are causing the pollution, Deputy Paris Mayor Anne Hidalgo said on France Info.

The pollution alert was extended to a dozen French regions hit by a cold snap that pushed temperatures below freezing. The warnings included Alsace and Normandy as well as the southern Mediterranean area around Nice.

"Bad air quality from particulates" can provoke allergic and asthmatic symptoms, Environment Minister Philippe Martin said in a statement. Airparif put its air-pollution index at the highest level because the concentration of PM<sub>10</sub> was poised to be greater than 100 micrograms per cubic meter. "The current period of pollution is equivalent to one last experienced in 2007," Arthur de Pas, a spokesman for Airparif, said. Airparif has warned in the past that residents of the French capital suffer from "chronically high levels" of pollutants such as nitrogen dioxide and particulates.

France has been put on notice by the European Commission for not respecting rules on emissions of PM<sub>10</sub>. For this episode, the Paris mayor made residential parking free in a bid to get people to leave their cars at home and use mass transit. Speed limits were lowered along the Parisian ring road and major arteries leading to the French capital that are typically clogged with commuters during weekdays, the Paris mayor's office said on its website.

### **Air Pollution Alert Raised In Barcelona**

Authorities have raised an air pollution alert for the Spanish city of Barcelona, a major tourist draw which suffered for days under a toxic grey mist, according to officials. "High atmospheric pressure and a lack of wind are preventing the dispersal of polluting emissions, which are accumulating over the city," said a spokeswoman for the Catalonia regional government.

As the mist obscured the city skyline, the government issued an alert in a bid to reduce gas emissions, said the spokeswoman.



Catalan city of Barcelona shrouded by haze on December 9, 2013

It lowered the speed limit for traffic, urged citizens to use public transport and asked factories to reduce their activity in the city of 1.6 million residents.

The level of toxic nitrogen oxide gas in the air had risen above the European Union legal limit seven times since December 4, the spokeswoman said, adding however that these exceptional rises did not threaten people's health.

A general view shows the



Barcelona draws millions of tourists a year for its nearby beaches and city sights such as the decorative architecture of Antoni Gaudi, including the Sagrada Familia cathedral.

But it also has one of the densest concentrations of motor vehicles in Europe and pollution gets trapped by the surrounding mountains, the spokeswoman said.

### **Macedonia Takes Precautions Against Air Pollution**



In this picture taken on Sunday, Dec. 15, 2013, buildings can be seen through the polluted air over Macedonia's capital Skopje, from Vodno Mountain just above the city.

Macedonia's government has imposed emergency measures in four cities, including Skopje, the capital, to address heavy air pollution caused by traffic and wood- and oil-burning heating systems.

For the past six days, airborne particle concentrations in the cities have exceeded the highest permissible levels during freezing winter weather. In response, the Environment Ministry instructed private companies and state institutions in the four cities to let pregnant woman and employees over the age of 60 remain at home. Kindergartens and primary and secondary schools also were advised to avoid outdoor activities, and construction workers were warned to avoid work before 11 a.m. and after 5 p.m.

Trucks will also be banned from the city centers from 7 a.m. to 7 p.m.

### **Air Pollution From Burning Coal Hits Bosnian Town**



Bosnian people walking on the street during heavy smog in the northern Bosnian town of Tuzla, 140 kms. north of Sarajevo, on Monday, Dec. 16, 2013. Due to heavy fog and air pollution, visibility was down to 10 meters (33-feet). Medical officials urged people not to spend too much time outdoors, with particular warnings issued to those suffering from respiratory or heart diseases.

Authorities have ordered factories and homes to stop burning coal in a central Bosnian town where air pollution has reached alarming levels. Zenica is an industrial town that produces steel and where many homes are heated by burning coal. That sometimes leads to significant air pollution.

Samir Lemes of the citizens association Eco Forum said the concentration of sulfur-dioxide in Zenica's air reached 1.400 micrograms per cubic meter, far above the acceptable concentration of 350 micrograms.

Authorities ordered factories to stop production if they have no alternative to burning coal. Families were told to begin burning wood to heat their homes.

The cities of Tuzla and Sarajevo were suffering heavy fog, partly the result of air pollution, but no orders about the burning of coal were given.

## **9. EU Moves Toward More Flexibility in 2020 Limits on Cars' Carbon Dioxide Emissions**

The European Parliament and the EU Council have resolved a dispute over a modification to a draft European Union regulation on carbon dioxide emissions from private cars to give German automakers more time to meet new limits. Meeting in Brussels on November 26<sup>th</sup>, negotiators from the two institutions agreed that an average carbon dioxide limit of 95 grams per kilometer (g/km), or 152 grams per mile, should be met by 95 percent of new vehicles sold in the EU in 2020 and by all cars in 2021. The agreement is subject to ratification by both institutions.

In addition, manufacturers would be given more flexibility to use "super credits," or offsets granted for electric cars and other "clean" vehicles, to avoid penalties in case their standard vehicle fleets exceed the 95 g/km limit.

The European Commission, the EU's executive arm, proposed in July 2012 that all new cars sold in the bloc should on average meet the 95 g/km limit by 2020. An informal agreement was reached by the Parliament and the EU Council in June, supporting the proposal. Germany blocked ratification of the June informal agreement, arguing that the 95 g/km limit should be phased in through 2024 to give automakers, especially German manufacturers of large luxury cars, more

time to comply. The regulation would impose an “excess emissions premium” of 95 euros (\$129) per g/km per vehicle above 95 g/km, and Germany feared its automakers wouldn't be able to implement fuel efficiency improvements, and therefore reductions in emissions per kilometer, quickly enough.

Reopening of negotiations after provisional agreements have been adopted by the European Parliament and EU Council is rare, and Germany was criticized for its intervention. Matthias Groote, a German center-left lawmaker who heads the European Parliament's Environment Committee, said in a statement on November 26<sup>th</sup> that the reopening of negotiations on the regulation “sets a dangerous precedent among the institutions. We must ensure that this doesn't happen again.”

Groote added: “Our objective was to stand firm and not weaken our targets, in order not to hold back innovation in the car industry and EU efforts against climate change. We accepted a very limited phase-in of one year only, combined with super credits.”

The European Parliament is scheduled to vote in January to ratify the revised agreement. The EU Council is expected to endorse it at a forthcoming meeting.

#### **10. EU May Extend Freeze on Limiting Foreign Flights' Emissions to 2020**

The European Union may decide in the next five months to extend a freeze on greenhouse gas emissions limits for foreign flights to as long as 2020, an EU adviser said. EU lawmakers will consider the position of nations, including the U.K., that are unwilling to have the bloc's emission limits imposed on flights outside the region, Pierre Dechamps, an adviser for energy and climate change at the Bureau of European Policy Advisers, said on December 5<sup>th</sup>. The bureau reports to European Commission President Jose Manuel Barroso.

The EU's suspension of emissions curbs on international flights applied to 2012 and was called stop-the-clock. Unless the bloc renews or changes the rules by April 30, airlines have to hand in allowances to match their 2013 emissions.

The U.K. said in November that it will seek to extend the halt, which was brought in to avoid trade conflicts and enable global talks on ways to curb aviation emissions. “I perfectly understand the point of the U.K. in this,” Dechamps said at the Westminster Energy, Environment and Transport Forum in London. “It could well be that, in the end, we rather go toward an extension of stop-the-clock until 2016 or even maybe 2020. It's probably still in the right direction.” Dechamps said he was speaking in a personal capacity rather than on behalf of the Commission, the EU's regulatory arm.

The United Nations' International Civil Aviation Organization agreed in October to complete a plan in the next three years for an aviation emissions market to start in 2020. Envoys at the meeting in Montreal declined to validate the EU's plan to include foreign flights in its emissions trading system before the start of the global program.

The commission is proposing to make the regional portion of foreign flights subject to emission curbs from 2014, which the U.K. is seeking to modify. The commission's proposal “doesn't reflect global politics or reality,” Niall Mackenzie, head of industrial energy efficiency at the U.K.'s DECC, said at the London forum. “If the main prize is a global system, and we're working towards that, why do you go and antagonize third countries?”

## **11. EU Sets Provisional CO2 Auction Calendar For 2014**

European governments will auction 926.2 million spot EU carbon permits next year under the bloc's Emissions Trading Scheme (ETS), the European Commission said recently. Around 819.7 million allowances will be sold by German energy exchange EEX on behalf of 27 countries, while London-based ICE Futures Europe will auction 106.5 million for the British government.

Under the EU ETS, utilities have to buy carbon permits to cover every metric ton of carbon dioxide they emit.

The volumes include 4.9 million Croatian units that were unable to be sold this year, but exclude a further 17.2 million allowances from Norway, Iceland and Liechtenstein, which will begin to be sold on EEX once an agreement is reached between the Commission, the exchange and the three non-EU countries.

The figures also do not take into account a proposal to prop up carbon prices by withholding sales of 900 million allowances, which was subsequently approved by EU member states and parliament (see story below). "The calendars will be modified accordingly for the remainder of the year following adoption of this (proposal) ... which will affect the (auction volumes) for individual years including 2014," the Commission said on its website.

EEX said it would hold auctions on behalf of 25 member states every Monday, Tuesday and Thursday from January 7 to December 16, and for Germany every Friday during that period. The bourse added that it will also hold sales for Poland every fourth Wednesday beginning on January 8, after the country selected this as an interim solution while it designs its own auction platform.

EEX was selected to host auctions by most governments, with only Britain opting to sell via ICE Futures Europe, which will hold sales of UK permits every other Wednesday.

The two exchanges are due to sell around 808 million allowances this year, meaning 2014's provisional sales quota marks a 15 percent annual increase. Under EU rules, the number of permits handed out for free to big polluters drops annually during the current 2013-2020 phase of the ETS, meaning that the number auctioned every year rises.

## **12. European Parliament Approves 'Backloading' Plan to Boost Price of Carbon Allowances**

On December 10<sup>th</sup>, the European Parliament voted in favor of a one-time intervention by the European Commission in the European Union's Emissions Trading System (ETS) in an attempt to boost the price of carbon allowances. Lawmakers meeting in Strasbourg, France, backed the measure, known as "backloading," by 385-284 with 24 abstentions, thereby formalizing an informal agreement to allow the intervention made in November with the EU Council, which represents EU member state governments.

Under the backloading plan, the commission will be authorized to delay the auctioning to ETS participants of up to 900 million carbon allowances in order to reduce the supply during the early part of the current phase of the ETS (2013-2020), and thus boost prices.

The commission in July 2012 proposed legislation to give it authority to make the change because of concerns that the price of EU carbon allowances was too low to encourage market participants

to make emissions-reducing investments. The July proposal was followed by a proposal in November 2012 specifying the deferral of 900 million allowances.

The ETS covers heavy industry, power generation and some aviation activities. Participants are required to obtain enough carbon allowances to cover their greenhouse gas emissions, with allowances being either distributed to them for free, sold at government-run auctions or traded on the carbon market.

The intervention is dependent on an impact assessment showing that backloading will not lead companies to move out of the European Union. The details of the commission's intervention will follow at a later stage. Sources familiar with the matter have previously said that the intervention is likely to involve postponing the auctioning of 900 million allowances from 2014-2016 until 2019-2020.

The commission has estimated that the ETS has a surplus of about 2 billion carbon allowances, equivalent to one year's emissions from all participants in the scheme. EU carbon allowances are currently trading at about 4.80 euros (\$6.60), compared with more than 20 euros in 2008, at the beginning of the previous phase of the ETS (2008-2012).

Following the Parliament's approval, the EU Council must also ratify the backloading intervention for the measure to be finalized.

Matthias Groote, a German center-left lawmaker and chairman of the European Parliament's Environment Committee, welcomed the Parliament's approval of the measure. In a statement, Groote said the ETS "rewards innovation and efficiency by putting a price on carbon. But it needs to deliver a clear price signal." However, center-right Finnish lawmaker Eija-Riitta Korhola said backloading "only speeds up the increase of energy prices," and the ETS "needs to be revised instead of artificially pumping up the carbon prices."

### **13. Energy Groups Say EU Commission Lacks Climate Ambition**

EU policymakers have bowed to industry concerns about the cost of environment policy without even exploring the potential for deeper emissions cuts, green energy groups said in a letter to the European Commission. The Commission, the EU executive, is expected to unveil in January its vision on 2030 energy and environment policy to follow 2020 goals on cutting carbon emissions, improving energy efficiency and increasing use of renewable power.

If the European Union succeeds in agreeing a 2030 carbon-cutting goal, it would be the first major bloc to do so ahead of a new global deal on climate change expected in 2015.

In their letter to Commission Secretary-General Catherine Day dated November 21, three umbrella groups representing scores of EU businesses - the Coalition for Energy Savings, the European Renewable Energy Council and the Climate Action Network - argue the Commission's assessment of the impact of 2030 goals "falls short of the necessary standards". In particular, the letter says the assessment does not include a wide enough range of options and puts politics before scientific analysis.

"We found the lack of a greenhouse gas reduction scenario of more than 45 percent to be inexplicable when a broad range of qualified stakeholders, including governments, are calling for a reduction of 50 percent, 55 percent and more," the letter says. Britain, for instance, has called

for a 50 percent goal, although 10 percent of this could come from offsets bought on the global market, leaving only 40 percent from harder-to-achieve domestic cuts.

EU sources have said the policy document in January is likely to settle on a carbon-cutting goal of 40 percent, which would be debated by the bloc's leaders at a summit in March. That could be accompanied by a goal to get 30 percent of energy from renewable sources, but probably at an EU-wide level, rather than through binding national targets, leaving some nations to do more and others less.

The Commission has said it is premature to agree on another energy-savings goal after difficult negotiations last year on enforcing the existing target of a 20 percent improvement in energy efficiency compared with business as usual.

Campaigners say a glaring example of the Commission closing its mind to deeper emissions-cutting scenarios is a paragraph in a draft stating renewable scenarios of more than 35 percent were not analyzed "in full detail" because they would mean a more than 45 percent cut in emissions or clashed, for instance, with some member states' plans on nuclear energy.

#### **14. Report Says Europe Cannot Afford To Give Up Climate Leadership**

Europe's abdication from climate leadership would stunt growth in the region and hand a huge economic advantage to China and the United States as they carve out their share of a multi-billion low-carbon market, a German think-tank said in a new report. The report's release coincided with U.N. climate talks hosted by Poland, one of the EU member states to have embraced the counter-argument that the European Union should be only a part of, not the leader of global climate efforts and that acting alone will damage competitiveness.

Germanwatch, a think-tank used by German government ministries to carry out research, says such a shift would only harm Europe's ailing industrial sector and it is no longer true to say the European Union is an isolated environmental leader. Already China's solar equipment exports are worth almost as much as its exports of shoes, making it a major threat to EU technology. In 2011, China's solar exports totaled \$35.8 billion compared with \$39 billion for shoes, U.N. data showed.

In all, the low-carbon energy products market will be worth an estimated \$500 billion per year by 2050, the report says, citing independent research and economists.

Apart from China, the world's other top greenhouse gas emitter the United States has also begun climate action. While Germany has blocked EU legislation to improve car fuel efficiency, the United States, known for its gas guzzlers, has adopted standards to double the efficiency of new cars compared with those on the road. German Chancellor Angela Merkel said she was saving jobs by sheltering luxury carmakers, such as BMW, which has funded her party, from tougher regulations.

Germanwatch says ultimately her actions will cost, not save jobs as the rest of the world innovates to capture the economic and air quality benefits of cutting fuel bills and emissions. "It's never a good long-term policy to build a protection wall around industry. In the end protection doesn't eliminate but increases the need for transformation," Christoph Bals, one of the report's authors said.

"Industry has legitimate concerns, but they can't blame all their problems on climate regulation."

EU industry is concerned the United States has a huge advantage from cheap energy generated from shale gas, while green energy charges are inflating EU energy prices. European gas prices are roughly three times higher than those in the United States and EU electricity prices are around 2.5 times higher, the European Commission has said. Germanwatch says costs not prices are the problem and they can be tackled through energy efficient buildings, for instance, which would create jobs in construction.

It also wants a deeper 2030 EU greenhouse gas goal (50-55 percent lower than 1990 levels) than the around 40 percent cut the European Commission is considering. A Commission analysis found a 40 percent cut would add around 0.5 percent to annual gross domestic product, in part because fossil fuel import bills would shrink.

### **15. Halving EU Emissions by 2030 Is Affordable, Says Britain**

Cutting the European Union's greenhouse gas emissions by 50 percent from 1990 levels by 2030 would reduce economic growth by a fraction of a percent, Britain's minister for energy and climate change has said. The European Commission is expected to unveil proposed 2030 green energy goals around the year end, and Britain wants the bloc to take on an ambitious target to help limit global temperature rises to below 2 degrees Celsius.

"Meeting a 50 percent target is affordable ... equivalent to a reduction in the EU annual growth rate of 0.04 percent between now and 2030," said Ed Davey, speaking at U.N. climate talks in Warsaw and citing the findings of a study done by the country.

The EU's Low Carbon Roadmap, which aims to cut greenhouse gas emissions by 80-95 percent by 2050, says the 28-nation bloc can inexpensively achieve reductions of 40-44 percent by 2030. Britain thinks the EU can attain a further 5-10 percent in cuts through buying international carbon offsets, effectively outsourcing the reductions to developing countries, where abatement is cheaper.

The Commission reportedly is looking at a bloc-wide target of 35 to 45 percent. A Commission analysis found a 40 percent cut would add around 0.5 percent to annual gross domestic product, in part because fossil fuel import bills would shrink.

The EU is expected to lead the way in outlining binding environment and energy targets for 2030, helping to frame a new global treaty to fight climate change. But Poland, for instance, which is heavily reliant on carbon-intensive coal, has sought to make any further EU promises conditional on the rest of the world pledging to do more to cut emissions.

The EU has already nearly met a target to cut 1990-level emissions by 20 percent by 2020, as a result of lower energy demand following a recession and a shift towards green power, such as solar and wind.

For 2030, the Commission is expected to propose targets for emissions and renewable energy, dropping an extension of its current 2020 energy savings goal.

### **16. Draft Paper Indicates That Merkel and SPD Set Goal for Reducing CO2 Emissions**

German Chancellor Angela Merkel's conservatives and the center-left Social Democrats have agreed to aim for a 40 percent cut in European carbon dioxide emissions by 2030 compared with

1990 levels, a draft paper from coalition talks showed. "We want to give climate protection a central role in energy policy," the paper read.

Both camps wanted to reduce emissions in Germany by "at least 40 percent" by 2020, the paper read.

The European Union is so far aiming to cut emissions by 20 percent by 2020 compared with 1990 levels. Member states want to set goals for 2030 in the coming months.

### **17. UK Study Finds Green Buses May Not Improve Air Quality As Much As Previously Thought**

Whole vehicle testing is the best way to ensure air quality improvements from hybrid buses and HGVs – which may not be as green as originally thought. That's the key finding of a new study from the Low Carbon Vehicle Partnership (LowCVP), which commissioned a review of the air quality impacts from the growing numbers of low-carbon buses in the UK.

With around 1,300 low-carbon buses now in operation, the report – prepared by engineering consultancy Ricardo – recommends that legislation needs to consider hybrid technology impacts in the test processes in order to avoid unintended consequences, in terms of local emissions in urban areas.

Reviewing worldwide test processes for HGV engines, the report says that Euro 6 emissions levels for diesel and gas engines should be roughly the same. However, limited whole vehicle test data shows that improvements, in terms of regulated emissions often don't match test expectations, due to the actual operating cycles of engines on the road.

Transport for London's bus fleet had the most robust data, according to the study. It showed that carbon emissions, fuel consumption and local air quality emissions were lower for green buses. But, in some cases, hybrid vehicles showed higher emission levels per unit of fuel burned than conventional buses.

The study suggests that although technologies such as hybridization offer the prospect of significant reductions in fuel consumption and CO2 emissions, compared to conventional vehicles, the improvement in terms of regulated emissions may not be so great. They recommend that buses – both conventional and hybrid, and fossil and alternatively fuelled – should be optimized over drive cycles more representative of their real operational use.

### **18. New Car GDI Engines Emit More Harmful Particles than Predecessors: Study**

New-generation petrol engines of passenger cars emit about 1,000 times more particles, including carcinogens, than traditional petrol engines, a study by German researchers showed. Faced with strict CO2 limits, carmakers have downsized engines to cut emissions and new gasoline direct injection (GDI) petrol engines may be in almost all new petrol cars sold in Europe by the end of the decade, the Brussels-based Transport & Environment think-tank said in a research paper. However, Germany's TÜV Nord independent vehicle researchers said in a study that GDI engines emit about 1,000 times more particles, including harmful carcinogens, than conventional petrol engines, and 10 times more than new diesel engines.



Increased emissions of harmful substances are caused by GDI engines operating with higher pressure in their cylinders, tending to produce a greater amount of the particles, according to Hanover-based TUV Nord.

"Cars are the largest source of air pollution in Europe's cities and 90 percent of European citizens are already exposed to harmful levels of particle pollution," Greg Archer, clean vehicles manager at Transport & Environment, said in the report. "More fuel-efficient, lower CO2 GDI engines would be a great innovation if they did not emit harmful particles. These particles can be eliminated for the price of a hands-free kit," Archer said.

## **19. EEA Warns of Aviation's Increasing Emissions**

Rising emissions of greenhouse gases and air pollutants from aviation pose a serious problem for the EU, says the European Environment Agency (EEA). A 2.6% rise in greenhouse gas emissions in 2011 limited the decrease in the transport sector's overall climate impact, according to the EEA's annual report on the environmental effects of transport. Overall GHG emissions fell by just 0.6%, not including sea shipping. Air travel increased by 10% to hit an all-time high in 2011.

EU lawmakers are considering whether to ramp up regulation of aviation's CO2 emissions, which was severely curtailed earlier this year. But the biggest member states – Germany, France and the UK – are strongly opposed.

The EEA report also shows international flights contributed quite significantly to a 2.3% increase in SOx pollution in 2011.

The trend of falling air pollutant emissions from transport "appears to have stabilized between 2010 and 2011", the authors concluded. The increased share of diesel in road transport fuels continues to cause high concentrations of particulate matter in cities, as well as high NOx emissions. PM10 limits were exceeded at 43% of traffic monitoring sites in 2011.

The slight reduction in overall GHG emissions from transport is consistent with the trajectory needed to meet the EU goal of a 60% cut on 1990 levels by 2050. But keeping on that trajectory could prove difficult without a shift to more sustainable modes of transport, the report warned.

"It is clear that GHG emissions are directly linked with transport demand, and the latter is influenced by the evolution of GDP. The challenge will be to maintain this good progress when the economic situation returns to pre-recession levels of growth and when the 'target trajectory' becomes more testing," it said.

Car use continues to increase in the new member states and is stabilizing in the older ones. Only the Netherlands had a high number of electric vehicles in 2011.

All EU countries were on track to hit the 10% share of renewables in transport by 2020. The use of renewable electricity remained very low compared with the amount of biofuels used, which rose by 3.9% over 2010-11, including biofuels that do not comply with the EU's sustainability criteria. The share of biofuels complying with the criteria increased by 6.3%.

The EU needs to accelerate the rate by which it is cutting transport oil consumption if it is to meet its target of a 70% reduction by 2050 on 2008 levels, the agency added. The reduction between 2010 and 2011 was just 0.6%.

## **20. Eastern States Need €6.5bn to Upgrade Their Large Combustion Plants**

Countries in Eastern Europe need to spend up to €6.5bn to bring their power plants in line with EU air pollution rules they have signed up to. The eight countries in the Energy Community must implement emission limits set out in the Large Combustion Plant Directive by 1 January 2018, although they can exempt some plants that limit their running hours and shut down in 2023.

Countries including Ukraine, Serbia and Albania have until 2015 to decide how many plants they want to exempt, although under the terms of the deal struck in October the EU gets the final say over whether these opt-outs go ahead.

Over half of the €6.5bn needed would be for SO<sub>x</sub> abatement, according to the Energy Community secretariat's calculations. NO<sub>x</sub> reduction accounts for 32% of the potential expenditure and dust reduction for 13%.

Ukraine needs to make by far the biggest investment, at over €5bn. EU candidate states Serbia, Montenegro and the Republic of Macedonia may need to find over €900m, unless they shut some plants down. Croatia, the EU's newest member, would need to spend €318m to comply with the Industrial Emissions Directive (IED), according to the Energy Community study. The country has until 2018 to implement EU emission limits for most plants.

But a cost-benefit analysis carried out as part of the study found that the health and environment benefits of modernization over 2018-30 significantly outweigh costs at an average ratio of 17:1 across the eight countries and Croatia. IED compliance could bring Croatia benefits worth over €7bn.

It is not clear where the EU's poorer neighbors will find the capital needed to clean up their plants. Most are over 30 years old and would need "significant environmental improvements" to comply with EU emissions limits, according to the study. The Energy Community itself does not have a budget for such investment. International lending institutions such as the World Bank are likely to be a major source.

## **21. First Decisions Emerge On Industrial Emissions Directive Transitional Plans**

The EU has approved Greece's transitional national plan (TNP) giving eight large combustion plants more time to comply with pollutant limits under the Industrial Emissions Directive. Decisions on another nine plans are due shortly. Environmental groups are concerned about the criteria the European Commission is using to judge the plans, and on this basis might challenge some of its decisions in court. They also expect some plans to be rejected.

Member states had to submit their transitional plans by January 2013 and the commission has a year to produce a decision. In the end, 14 submitted plans, plus Croatia after its accession in the summer. The commission has been in discussion with some member states over changes to their plans, including Greece.

The transitional plans cover the period from 2016 to mid-2020, by which time the plants included must comply with IED standards. Member states must also set out the measures they are planning to bring the plants into compliance.

Another derogation is also available, which some plants may use instead of TNPs. It is called the limited lifetime derogation and allows them to keep running until the end of 2023 but with restricted hours. Applications must be made by January 2014.

Environmental campaigners think the commission should be taking a broader approach in considering the transitional plans. For instance, some of the power plants they cover are in areas that breach EU air quality standards but this will not be taken into account, says Kathrin Gutmann from CAN Europe. In addition, many member states have not yet carried out strategic environmental assessments on their plans or consulted the public, she said.

NGOs are also unhappy that they have not been able to see the discussions between the commission and member states over changes to the plans, and that the list of measures is not included in the official Greek decision.

Six NGOs wrote to EU environment commissioner Janez Potočnik in October raising these and other concerns but Ms. Gutmann said the reply was not reassuring.

The other decisions expected soon are for Bulgaria, Finland, Hungary, Ireland, Lithuania, Slovakia, Slovenia, Spain and the UK. The other countries that submitted transitional plans are: Croatia, the Czech Republic, Poland, Portugal and Romania.

## **22. Consumer, Green Groups Voice Fears Over EU-U.S. Trade Deal**

U.S. and European Union negotiators are holding a second round of talks in Brussels on December 16<sup>th</sup>, on what would be the world's biggest free-trade deal, with a special focus on reducing regulatory barriers to trade. But European consumer and environmental groups have warned that consumers risk losing out in a free-trade deal between Europe and the United States if big business succeeds in loosening standards,

BEUC, Friends of the Earth and the European Public Health Alliance told a joint news conference they were concerned that mutual recognition of regulations, designed to cut costs, would in fact result in the adoption of the lowest standards.

EU Trade Commissioner Karel De Gucht has repeatedly said EU regulation on genetically modified (GM) food will not be changed, but the United States considers this a trade barrier that must be reduced. Consumer groups fear a deal will lead to more GM crops used in products sold in Europe, where there is widespread public distrust of the technology, with looser labeling rules preventing consumers from making informed choices.

The European Union has already dropped its ban on certain U.S. meat imports such as beef washed in lactic acid and poultry washed in chlorine.

The European associations said their comments were not designed as an attack on U.S. standards, but European consumers were broadly protected by a requirement that corporations prove their toys, chemicals and other products do not cause harm. The U.S. approach is more to allow consumers to obtain damages for actual harm, they said.

U.S. consumers could also suffer if current tough regulations on medical devices, financial services or alcohol were watered down, they said.

Among the European associations' greatest concerns is a provision in the future trade deal that would allow foreign companies to bring claims against a country if it breaches the treaty. This, they said, would limit a country's right to pass laws to protect its citizens or the environment.

The Transatlantic Trade and Investment Partnership (TTIP) would create a tariff-free trade zone between the U.S. and the EU, the world's two largest economies. The White House says TTIP will open European markets and stimulate U.S. economic growth.

Robert Weissman, president of Public Citizen, said during a conference call with reporters that the agreement is largely about resolving regulatory differences between the U.S. and the EU that may impede trade.

A White House fact sheet declares that TTIP will “significantly reduce the cost of differences in regulations and standards by promoting greater compatibility, transparency and cooperation,” but also claims that high standards for U.S. health, safety and environmental protection will be maintained. Weissman said corporations are likely to use the negotiations to impose single standards for the U.S. and the EU, inevitably settling on the lowest common denominator.

For example, Michael Brune, executive director of the Sierra Club, said during the conference call that corporations on both sides of the Atlantic are engaged in a “feeding frenzy” to weaken rules on chemical safety, fossil fuels and labeling for genetically modified organisms. Weissman also said European corporations are challenging the so-called Volcker Rule that puts limits on the types of investments banks can make.

Regulatory protections should be determined through a democratic process, “not by a corporate-driven trade agreement,” Brune said.

Some 70 corporations, including AT&T, British Petroleum, Ford Motor Co., Intel, Johnson & Johnson, Microsoft, Pfizer, Philip Morris Intl. and Verizon, belong to the Trans-Atlantic Business Council, the official forum between U.S. and EU business and government leaders for the TTIP talks. However, the details of the talks aren't known, because the talks are held in secret and transcripts haven't been made public, Weissman said.

Weissman further said harmonized standards are likely to come with restrictions that would bar regulators from moving to higher levels of protection over time, as new information becomes available or new threats arise. Precautionary measures, in the absence of certainty about consumer, environmental or other risks, would also be difficult to impose, he said.

The talks may also yield a regulatory cooperation council, a nontransparent “superagency” that would reach into both the U.S. and EU regulatory machinery to further impede already difficult rulemaking processes, Weissman said. Such a council would let corporations in Europe comment on U.S. rules before they are proposed and could even subject all significant rules to trade impact assessments, Weissman said. Both U.S. and EU negotiators have offered proposals to create such a council, according to Weissman.

Moreover, the TTIP negotiators have suggested a dispute resolution system that would give big companies special rights to challenge national laws, and to bring cases challenging regulatory action to secret tribunals made up of “corporate-friendly lawyers.”

The pact is likely to increase the use of fossil fuels in Europe, Michael Brune, executive director of the Sierra Club said. EU negotiators have brought forward language that would limit the ability

of governments to oversee fossil fuel exports, opening the floodgates for higher use of liquefied natural gas and locking both export and import nations into a cycle of mutual dependency.

Domestically, such an agreement could lead to more hydraulic fracking, Brune said.

Peter Chase, the U.S. Chamber of Commerce's vice president for Europe, told reporters in June that the talks will seek not to lower regulations, but rather will encourage U.S. and EU negotiators to "respect each other's regulations and find a way to, if possible, create a bridge between them." But Anna Fielder, senior policy advisor at the Transatlantic Consumer Dialogue, rejected those arguments during the conference call. A trade agreement could theoretically increase consumer welfare and wellbeing by raising the less-protective economy to the standard of the more-protective and spreading the use of best practices, Fielder said. "But we have very real doubts that achieving such a state of nirvana is possible," she said.

The negotiations that began on December 16<sup>th</sup> are the third round. Because the scope of the talks is so sweeping, a final agreement doesn't appear to be imminent.

## **NORTH AMERICA**

### **23. API, Emissions Control Makers Spar Over 'Tier III' Low-Sulfur Fuel Mandate**

The American Petroleum Institute (API) and the Manufacturers of Emission Controls Association (MECA) are sparring over a low-sulfur fuel mandate in EPA's proposed "Tier III" vehicle air rule, with the two sides criticizing each other's data and statements sent to the agency trying to influence EPA to either drop or retain the mandate in the pending final rule.

The latest dispute, detailed in comments filed recently with the agency, focuses on whether various "cold start" emission control technologies are sensitive to sulfur, along with the future viability of fuel-efficient "lean burn" engines that automakers say would be held back by retaining higher gasoline sulfur levels. The groups are battling over the rule months after EPA closed the official notice-and-comment period on the proposed version on July 1.

EPA recently announced it is delaying by two months its previous non-binding December target date for releasing the final version of the rule, saying it needs more time to review comments and analysis.

API argues that the rule's proposed requirement to cut fuel sulfur levels from 30 parts per million to 10 parts per million will increase refining costs while offering few public health benefits, with a further claim that automakers do not need low-sulfur fuel to meet new tailpipe emissions standards that come into effect in 2017.

But the Manufacturers of Emission Controls Association (MECA), in comments sent to EPA on August 22<sup>nd</sup>, works to rebut earlier comments from API and the American Fuel & Petrochemical Manufacturers (AFPM) that claimed three technologies that limit nitrogen oxides (NOx) and hydrocarbons emissions during cold starts are unlikely to be sulfur sensitive -- meaning the emissions control technology would maintain its performance even with higher-sulfur fuel.

MECA says this analysis is "severely flawed" in its assumption that the cold start technology are not sensitive to sulfur, as it says that technology "still relies on a precious metal-based catalyst to oxidize hydrocarbons or reduce NOx, and these precious metal-based catalysts have well known sensitivities to fuel sulfur levels." The trade group says it is unaware of any cold-start emission

control technology not impacted by fuel sulfur, given that the technologies all rely on precious metal catalysts, adding that "API's and AFPM's premise that cold-start emissions can be zeroed out by a sulfur insensitive technology has no basis in fact."

Further, MECA tries to rebut comments from API that the market share for fuel-efficient lean-burn gasoline direct injection (GDI) engine could top out at 3 percent market share between 2015 and 2020, saying the auto sector has a "significant interest" in further developing the engines to comply with EPA fuel economy standards intended to cut greenhouse gas emissions.

MECA says the low-sulfur level mandated by Tier III will be an "important enabler" for the engines, which can cut gasoline use by up to 20 percent, as the group says current gasoline sulfur levels inhibit the performance of NOx absorber catalysts typically used in lean-burn GDI engines.

API, however, in reply comments recently submitted, says MECA "completely misses the point" it was trying to make about cold start engine technology, saying it never claimed that the cold start technology had "zero sulfur sensitivity," but rather that the technology is "not likely to be very sulfur sensitive." API also faults some the supplemental comments from MECA as being based on "very limited data that have not been independently verified."

Further, API criticizes MECA's outlook for lean-burn GDI engines as ignoring the "real world experience" of the markets where low-sulfur gasoline is already available, saying that MECA "does not explain why lean-burn GDI technology failed to enter the European and Japanese markets in significant volumes" after they switched to gasoline with sulfur levels that are 10 parts per million.

#### **24. EPA FY14-18 Plan Targets Heavy Duty Vehicle GHGs, Off-Road Emissions**

EPA's draft strategic plan outlining policy priorities for fiscal years 2014-2018 says the agency's air office will prioritize new greenhouse gas (GHG) rules for heavy-duty vehicles, while evaluating possible new controls on both GHGs and conventional pollutants from off-road mobile sources such as engines used in construction. The new policy goals are outlined in a section of the plan titled "Addressing Climate Change and Improving Air Quality" that provides an overview of EPA's key objectives in the strategic plan, which also includes targets for its water, waste, enforcement and other programs. According to EPA's website, the plan is a blueprint for advancing the agency's priorities and also projects environmental and human and health targets to achieve those outcomes.

EPA says that much of the GHG activity for mobile sources it has planned for FY14-18 lines up with President Obama's Climate Action Plan to reduce GHGs 17 percent below 2005 levels by 2020.

In recent years, EPA has finalized two rounds of GHG standards for light-duty passenger vehicles and one round of heavy-duty vehicles rules, and the strategic plan says the agency will prioritize further cuts from heavy-duty vehicles.

EPA sets a target deadline of Sept. 30, 2015, to coordinate with the Department of Transportation on implementing the existing vehicle and truck rules that are expected to cut GHGs by 6 billion metric tons.

The plan, published in the November 20 Federal Register, say EPA will also focus on implementing the existing vehicle GHG rules, which include light-duty standards for model years

2012-2016 and 2017-2025, and the first round of GHG standards for medium- and heavy-duty trucks for model years 2014-2018.

But the agency will also develop a proposal for a second phase of GHG standards for heavy-duty vehicles, weighing options such as how to encourage use of advanced technologies in the regulations and whether to include truck trailers in the rule, after deciding against regulating them in the first round of the standards.

EPA also indicates that it is ramping up its focus on emissions from off-road engines such as those used in construction, agriculture and other sectors. The agency says that in the FY14-18 time frame it will assess GHG control options for these sources, including whether to set standards for GHG emissions "from a wide range of non-road equipment, locomotives, marine vessels and aircraft, and transportation fuels."

EPA is facing several petitions to issue GHG rules for these types of engines, but has yet to respond to the requests for rulemaking -- and has said its preference for marine and aircraft GHG rules is through international agreements with global standards-setting organizations, rather than setting domestic-only rules.

In addition to considering GHG rules for off-road engines, EPA is also weighing the need to craft rules between FY14 and FY18 to curb these sources' emissions of conventional pollutants such as nitrogen oxides (NOx), volatile organic compounds (VOCs) and fine particulate matter (PM2.5), according to the plan.

EPA says it has conducted an analysis of the mobile source emission inventory to guide future air program priorities, and found that in the 2017-2030 time frame, off-road engine emissions will account for a larger percentage -- more than 50 percent -- of the mobile source inventory for NOx, VOCs and PM2.5.

Any new EPA regulations for off-road engines would likely revive debate over federal preemption of states' efforts to curb those mobile source emissions. California, which has authority under the Clean Air Act to set stricter mobile source rules than the federal government, has pursued a series of non-road engine emissions rules but the policies have faced legal challenges by the road building industry which says federal rules preempt the state policies.

EPA is taking public comment on the draft strategic plan through January 3<sup>rd</sup>.

## **25. U.S. 2012 Model Vehicles Hit Record Fuel Efficiency: EPA**

The average fuel economy of vehicles sold in the United States hit a record high 23.6 miles per gallon (mpg) for the model year 2012, the U.S. Environmental Protection Agency has announced. Projections for the model 2013 year indicate a rise of 0.4 mpg, the EPA said, though the agency added that it did not yet have final data for 2013.

The 23.6-mpg reading for 2012 was a 1.2 mpg increase over the previous year and the second largest increase in the last 30 years, the EPA said. The boost is part of a trend that has seen fuel economy increase by 2.6 mpg, or 12 percent, since 2008, and by 4.3 mpg, or 22 percent, since 2004, according to the EPA.

Automakers reported an 8.9 percent rise in U.S. sales in November from a year earlier with a seasonally adjusted annualized rate of sales reaching 16.41 million vehicles.

The highest adjusted (as defined by the EPA) fuel economy rating among automakers was achieved by Mazda, with model year 2012 rating on all its cars and trucks of 27.1 miles per gallon. Honda ranked second with a fleetwide rating of 26.6 mpg, followed by Volkswagen at 25.8 mpg, and Toyota at 25.6 mpg. The best-rated U.S. carmaker's fleet came from Ford with a fuel economy score of 22.8 mpg, followed by General Motors at 21.7 mpg, and Chrysler at 20.1 mpg.

Pickup truck and SUV sales at all three U.S. automakers drag down their overall fleet ratings. Ford cars, for example, average 27.2 mpg, while Ford trucks managed just 18.5 mpg. GM's Chevrolet cars posted a fuel economy rating of 25.7 mpg while Chevy pickups could manage just 18 mpg. Chrysler's Dodge Ram pickups posted just 16.1 mpg.

In carbon dioxide emissions, U.S. automakers performed worse than the 2012 average of 376 grams per mile. Ford vehicles emitted 390 grams per mile while GM vehicles came in at 410 grams per mile and Chrysler was worst of all makers at 442 grams per mile.

Alternative fuel vehicles are also included on fuel economy estimates in mile per gallon equivalent (mpge) and carbon dioxide emissions. All electric vehicles like the Nissan Leaf or the Model S from Tesla Motors emit no tailpipe carbon dioxide, which a Toyota Prius plug-in hybrid emits at 133 grams per mile and the Ford C-MAX and Fusion models emit 110 grams per mile.

The mileage ratings are based on converting electricity consumption data into an equivalent amount of energy as contained in a gallon of gasoline. For a Tesla Model S with the 85kW-hr battery pack that works out to 89 mpge. The highest rated vehicle is the Scion from Toyota at 121 mpge.

## **26. As Gasoline Consumption Declines, U.S. Proposes Biofuel Mandate Cut**

The Obama administration has proposed slashing federal requirements for U.S. biofuel use in 2014 attempting to prevent a potential fuel crunch next year. It was the first cut to renewable fuel targets written into a 2007 law, and follows the Environmental Protection Agency's warnings that the country was approaching a point where the so-called Renewable Fuel Standard (RFS) would require the use of more ethanol than can be blended into gasoline at the 10 percent level that dominates the U.S. fueling infrastructure.

Refiners have said this "blend wall," if left in place, would force them to export more fuel or produce less gasoline, leading to shortages and higher prices at the pump. In response, the EPA proposed to cut overall use of renewable fuels, made mostly from U.S. corn and to a lesser extent from soybeans, grasses, crop waste and Brazilian sugarcane, to a range of 15 billion to 15.52 billion gallons. Within that range, the agency proposed a specific goal of 15.21 billion gallons, which is more than 16 percent less than the 18.15 billion gallons contained in the law that governs the RFS, and below this year's 16.55 billion gallons.

The proposed goal matches the number contained in a draft that was leaked and circulated in October.

U.S. gasoline demand had been expected to rise every year when Congress passed the law in 2007, but it peaked in 2008 and has been anemic since, partly because fuel efficiency of U.S. cars and light trucks has risen steadily. "This unanticipated reduction in fuel consumption brings us to the point where the realities of the fuel market must be addressed to properly implement the program," a senior administration official told reporters in a teleconference about the proposal.



The impending blend wall problem had led to a surge in prices for ethanol credits, known as renewable identification numbers or RINs, from a few cents a year ago to almost \$1.50 at midyear. The surge had threatened to push up gasoline prices as the extra RINS costs for refiners would have been passed on to consumers. RINS prices have subsided in recent months, propelled lower in part by confidence that the 2014 mandate would be tweaked. After the EPA proposal on Friday, RINs prices fell about 7 cents to 18 cents.

The proposal still falls short of a request from two major oil and gas trade groups to lower the 2014 renewable fuel use target to 14.8 billion gallons.

The plan cuts the 2014 use of advanced biofuel, including biodiesel made from soybeans and Brazilian ethanol from sugarcane, to a range of 2.0 billion to 2.51 billion gallons. The agency did not propose a specific 2014 volume for ethanol made from corn but the proposed change in advanced biofuels implies a corn ethanol mandate of 12.7 billion to 13.2 billion gallons, down from the previous 2014 mandate of 14.4 billion gallons.

The EPA expects to release a final rule next spring after a 60-day public comment period. After that ethanol backers could unleash legal challenges to soften or reverse the changes.

## **27. Advanced Biofuels Could Remove Blend Wall, Senate Panel Told**

Continued support of developing next-generation transportation biofuels could create alternatives that existing engines and distribution systems can safely handle, two federal government witnesses suggested. This would eliminate the blend wall that the US has hit with growing amounts of corn-based ethanol required under the Renewable Fuel Standard amid reduced gasoline demand, they told the US Senate Environment and Public Works Committee and its Clean Air and Nuclear Safety Subcommittee.

The US Department of Energy and the bioenergy community are using cellulosic ethanol research, development, and demonstration successes to accelerate cellulosic and algal “drop-in” biofuel technologies that can be used to displace petroleum-based gasoline, diesel, and jet fuel, said Steven Chalk, DOE’s deputy assistant secretary for renewable power. “Successful RD&D investments in cellulosic ethanol have provided foundational knowledge and capability at national laboratories, in industry, and at universities to develop the more challenging bio-based gasoline, diesel, and jet fuels,” he testified. Five biorefineries are in the early stages to commercially produce cellulosic ethanol, “and we expect a very fast ramp-up,” Chalk said. “We’re committed to the RFS, and the process and checks and balances Congress provided. We think the long-term predictability of the RFS is vital to encourage investment.”

“For most of the growth in the future, it’s mostly about advanced biofuels,” added Chris Grundler, who directs the US Environmental Protection Agency’s Transportation and Air Quality Office. “Our cellulosic standard will be based on what can be produced in the coming year. As for market conditions that would incentivize more infrastructure, we are seeing progress.” He said EPA believes its proposed framework for determining appropriate total renewable fuel and advanced biofuel volumes under the RFS would simultaneously address the ethanol blend wall and limitations in availability of qualifying renewable fuels. “Our proposal envisions more E15 and E85 being sold next year,” Grundler said. “We got a variety of views at our public hearing last week, where we asked for updated information on sales and infrastructure.”

Some of those views were restated at the committee's December 11<sup>th</sup> hearing. Wesley K. Clark, co-chairman of Growth Energy, which originally petitioned EPA to increase the allowable ethanol limit in gasoline from 10% to 15%, said the RFS has succeeded and does not need to be reformed. American Fuel & Petrochemical Manufacturers President Charles T. Drevna said it's not working properly and needs to be reworked and possibly repealed.

Jim Collins Jr., senior vice-president of industrial biosciences at DuPont Co.'s Performance Polymers and Packaging & Industrial Polymers Division, said the chemical manufacturer strongly supports the RFS based on its experience in corn-based ethanol and the significant potential it sees in cellulosic ethanol. "For the past 4 years in Iowa, we worked closely with farmers, equipment makers and academia on corn stover harvest trials to build and manage a cost-effective cellulose supply chain," he testified. "All this work culminated in the groundbreaking of a 30 million gal/year facility 1 year ago in central Iowa, approximately 40 miles north of Des Moines. I am happy to report that the construction is progressing on track and the facility is scheduled to begin producing its first gallons of cellulosic ethanol in the second half of 2014."

Collins said DuPont also is working with BP on a joint venture to develop and extensively test biobutanol, a higher alcohol fuel that is produced much like ethanol but has higher fuel qualities and better mileage. "It also reduces the volatility of fuel blends, and so can be used where summer air quality concerns persist," he explained. "It can be distributed by existing gasoline infrastructure, including pipelines. Lastly, biobutanol is more compatible with existing equipment, including small engines and marine engines."

Scott Faber, vice-president of government affairs at the Environmental Working Group, said, "Our view is we need an RFS. It's critically important to reduce the carbon intensity of our fuels, but we believe it's not working as the 2007 legislation intended." He suggested that the corn ethanol mandate be modified so producers have to meet greenhouse gas control requirements comparable to those for advanced biofuel producers. "Reducing the amount of corn ethanol we blend into gasoline would send a powerful signal to the investment money to put money into the second generation of technologies," Faber said. "The way we're managing it now has created a climate of likely litigation that has increased uncertainty."

Shortly after the hearing, US Senators Dianne Feinstein (D-Calif.) and Tom Coburn (R-Okla.) introduced a bill that would eliminate the corn ethanol mandate. "Under the corn ethanol mandate in the RFS, roughly 44% of US corn is diverted from food to fuel, pushing up the cost of food and animal feed and damaging the environment," Feinstein said. "Oil companies are also unable to blend more corn ethanol into gasoline without causing problems for automobiles, boats, and other vehicles. "I strongly support requiring a shift to low-carbon advanced biofuel, including biodiesel, cellulosic ethanol, and other revolutionary fuels. But a corn ethanol mandate is simply bad policy," she continued.

"This misguided policy has cost taxpayers billions of dollars, increased fuel prices, and made our food more expensive," Coburn said. "Eliminating this mandate will let market forces, rather than political and parochial forces, determine how to diversify fuel supplies in an ever-changing marketplace."

Sens. Richard Burr (R-NC), Susan Collins (R-Maine), Bob Corker, (R-Tenn.), Kay Hagan (D-NC), Jeff Flake (R-Ariz.), Joe Manchin (D-W.Va.), James E. Risch (R-Idaho) and Patrick Toomey (R-Pa.) are co-sponsors.

The American Petroleum Institute immediately applauded Feinstein and Coburn's bill. "Repealing corn ethanol mandates is the first step toward protecting consumers from outdated and costly public policy," API Downstream Director Bob Greco said. "EPA's proposal to lower the 2014 mandates could provide a stopgap, but Congress needs to deliver a long-term solution to provide certainly for consumers," he maintained. "Requirements set back in 2007 could soon push ethanol levels in gasoline above what is safe for most cars on the road today."

## **28. Renewable Fuel Backers Try To Change EPA's Mind at Hearing**

Supporters of the renewable fuels industry turned out en masse at a public meeting held by the Environmental Protection Agency on the Renewable Fuel Standard, desperate for the U.S. government to change course after last month announcing a plan to lower the amount of biofuels that must be added to the fuel supply in 2014. About 300 people attended the meeting. The number of stakeholders who signed up to testify - almost 150 - was 10 times or more the count at a similar meeting a year ago, an EPA official said.

The meeting comes nearly three weeks after the Obama administration proposed slashing how much renewable fuel - mostly corn-based ethanol - needs to be blended into the U.S. fuel supply. The 2007 law mandated a total of 18.15 billion gallons of renewable fuel blending next year. The EPA's proposal requires just 15.21 billion gallons. The EPA proposed cutting the corn ethanol portion of the 2014 mandate from the 14.4 billion gallons called for by law to about 13 billion. Based on projected gasoline demand, that level of ethanol use would be slightly less than 10 percent of total U.S. gasoline consumption.

Speakers ranged from representatives of the biofuels industry and petroleum refiners to anti-hunger groups, bakers, small-engine manufacturers, lawmakers and the governor of Iowa, the largest U.S. corn-producing state.

A panel of five EPA rule makers - including Chris Grundler, director of the EPA's Office of Transportation and Air Quality - listened intently as groups of five to six speakers came up in succession to state their positions.

The sprawling event showed the intense interest in the future of biofuels - and caps a year of fierce lobbying that has raged in Washington between pro- and anti-ethanol interests.

The EPA has warned that the country is approaching a point where the RFS would require the use of more ethanol than can be blended into gasoline at the 10 percent level that dominates the U.S. fueling infrastructure. Refiners have said this so-called "blend wall," if left in place, would force them to export more fuel or produce less gasoline, leading to shortages and higher prices at the pump.

The use of a higher, 15 percent ethanol blend, known as E-15, is a big part of the debate. The EPA has declared E-15 safe for cars, SUVs and light trucks built from 2001 forward, now the majority of the U.S. fleet. But refiners say the blend risks damage to car engines, as well as chainsaws, boats and other equipment.

## **29. Refiners Fight 2013 RFS in Court as Senators Debate Program's Future**

While EPA works to finalize the 2014 proposal, it is currently battling a U.S. Court of Appeals for the District of Columbia Circuit consolidated legal challenge by refiners over its 2013 RFS fuel targets. The American Petroleum Institute (API) and American Fuel and Petrochemical

Manufacturers (AFPM) filed suit over the 2013 RFS, and in their December 9<sup>th</sup> opening brief the groups allege that the method the agency used to establish the standard is arbitrary and capricious, and runs contrary to EPA's statutory authority. The brief says "EPA's increase of the RFS during the compliance year is contrary to law and arbitrary and capricious."

The groups allege that EPA "impermissibly" tasked the Energy Information Administration (EIA) to conduct a second analysis of transportation fuel demand in 2013 without allowing stakeholders to comment on the analysis before making the 2013 requirements final, which API and AFPM argue violates statutory notice-and-comment requirements.

The brief claims that the agency gave no notice when it "switched from using the October 2012 EIA estimate of total transportation fuel, which is specifically required by the [Clean Air Act], to using a new, lower EIA estimate from May 2013, which had the effect of increasing obligated parties'" volumetric blending obligations.

They say the action is unprecedented since the RFS was established, and EPA "has never before used an EIA estimate other than the one provided in October of the preceding year . . . . The final rule is therefore not a 'logical outgrowth' of the proposed rule, and obligated parties were deprived of notice and an opportunity to comment."

API and AFPM also claim that EPA erred because it included an exemption for small refineries in the final version of the 2013 RFS, but did not include the exemption in the earlier proposed version of the rule. The exemption increases the amount of fuel required to be blended by the obligated parties, thus depriving "obligated parties of the regulatory certainty that Congress intended and that EPA has repeatedly acknowledged is necessary."

The groups also argue that the agency's blending requirements for cellulosic biofuels are arbitrary and capricious, and violated the DC Circuit's previous orders admonishing the agency's method in determining how much fuel is able to be blended by refiners. The court ruled in January of 2013 that EPA in its 2012 RFS based the cellulosic volume requirement on projections that were far above production volumes based on available capacity.

EPA's opening brief in the litigation is due on January 30<sup>th</sup>.

### **30. Emissions Study Finds Advanced Diesels Extremely Clean**

The most rigorous emissions testing ever done for modern heavy-duty diesel engines – which power virtually every large truck and bus sold in the United States – has demonstrated a greater than 94% reduction in the levels of nitrogen dioxide (NO<sub>2</sub> - an important contributor to ozone smog), and substantial reductions in all other pollutants, even when compared to engines first marketed to meet 2007 standards, according to a new study from the Coordinating Research Council (CRC). For a number of the most important pollutants, levels were substantially lower than required by regulations. These 2010 engines represent the newest generation of emission control technology. They were developed in response to the US Environmental Protection Agency Heavy-Duty On-Highway Diesel Emissions Rule of 2001 which mandated the implementation of strict NO<sub>x</sub> standards starting in January 2010. The rule also mandated the implementation of a stringent PM standard in engines to be sold starting in January 2007.

The study, the Phase 2 Report of the comprehensive Advanced Collaborative Emissions Study (ACES), found that emissions of NO<sub>2</sub> and other nitrogen oxides – which can have direct health effects and contribute to the formation of smog – were approximately 61% below the 2010 EPA

standard and 99% lower than in 2004 engines. These reductions came while emissions of fine particles – a pollutant of significant public health concern whose emissions have been successively reduced by EPA regulations – were also 99% lower than 2004 emissions. Emissions of carbon monoxide, hydrocarbons, and a number of unregulated, so-called air toxics were also significantly below required levels.

The Phase 2 ACES study was conducted by the Southwest Research Institute in San Antonio, Texas, under the oversight of the CRC. Investigators tested heavy-duty diesel engines from the three major manufacturers of these engines, and subjected them to well-established federal test procedures, and to a much more rigorous 16-hour operation cycle designed especially for ACES. All the engines were equipped with after-treatment devices to reduce the emissions of particulate matter as well as oxides of nitrogen. They were tested on multiple repeats of these cycles, and measurements of over 300 regulated and unregulated air pollutants were made in accordance with the highest laboratory standards.

ACES is a multi-party five year initiative to test the emissions and health effects of new technology diesel engines to document the improvements that have been made and to ensure that there are no unintended emissions from this new technology. The study is being undertaken by the Health Effects Institute (HEI) and the CRC with support from a wide range of government and private sector sponsors, including the US Department of Energy, US Environmental Protection Agency, California Air Resources Board, Engine Manufacturers Association, American Petroleum Institute, and manufacturers of emission control equipment.

### **31. Truckers Seek EPA Overhaul of California Mobile Source Air Rule Waivers**

The trucking industry is urging EPA to overhaul its process for reviewing California's frequent applications for Clean Air Act preemption waivers to implement mobile source air rules stricter than federal policies, saying the years-long process creates enforcement gaps, competitive disadvantages, and rule compliance delays. In recent comments to the agency, the American Trucking Associations (ATA) says the existing process penalizes trucking companies that make major efforts to comply early and creates "confusion" in the industry. "Important lessons should be learned from how this process has unfolded and how waiver requests should be handled in the future," says the group in its comments on California's waiver request for a rule to regulate truck and trailer greenhouse gases (GHG).

ATA, representing a slew of trucking sector groups, says that beyond the waiver at issue EPA should review its overall implementation of the air law waiver process in order "to provide future certainty to regulated industries." In particular the group wants EPA to address what it sees as troublesome gaps between the adoption of the state's mobile source rules and the submittal to the agency of a waiver request. ATA warns this can lead to a situation where regulations are implemented but lack state enforceability while EPA approval is pending.

EPA should also determine "whether it is valid to place new equipment requirements on equipment which has already been purchased and is in operation," and evaluate whether there are "adequate enforcement resources available to achieve the projected levels of compliance and environmental benefits" assumed by the rules.

The industry organization charges that because California regulators sometimes fail to apply for the waivers for years after adopting new regulations -- and EPA often fails to make a decision on those requests for years -- there is in many cases little or no state enforcement of the rules. As a

result, companies complying with the measures are at a severe competitive disadvantage to companies that are not complying, the group says.

The group says that the complaints it raises over the waiver process should be addressed either in EPA's response to the truck GHG rule waiver, or as a separate process that will provide more certainty in the future.

Any EPA approval of a review of the waiver process would have significant implications for both state and federal vehicle policies for conventional pollutants and GHGs. California has long enjoyed air law authority to apply for waivers to impose more stringent mobile source rules that, if approved, other states can adopt. The most notable recent example of the air waiver authority is light-duty passenger vehicle GHG rules that the California Air Resources Board (CARB) was pursuing, which ultimately was resolved by EPA adopting the rules on a national scale.

EPA took comment through October 18 on one of CARB's latest waiver requests -- for rules affecting heavy-duty tractors and truck trailers 53-feet long or longer. The rules require truck owners to improve the fuel efficiency of their rigs by requiring use of aerodynamic tractors and trailers that are also equipped with low-rolling resistance tires.

One of the compliance mechanisms is that trucks meet current EPA SmartWay-verified technologies. Some of the technologies include trailer rear fairings, front-gap fairings and trailer side skirts. The CARB regulation does not include any engine-related rules to reduce GHG emissions.

CARB adopted the rules in December 2008. The state's Office of Administrative Law approved the rules in December 2009 and they took effect January 1, 2010. The rules were also amended, mostly to relax requirements, in 2010 and 2012. Until EPA approves the rule waiver, CARB is not allowed to enforce the regulation on "new" equipment, ATA contends. ATA says in its letter that CARB did not submit its application for a waiver for the rules until June 2013.

Meanwhile, the California Construction Trucking Association (CCTA) & Western Trucking Alliance, as well as the Allen Lund Co., are urging EPA to reject the waiver, calling the CARB regulation "arbitrary and capricious" and failing all preconditions necessary under the air law, according to an October 17 letter from the organizations. They claim the state is violating the air law by regulating trailers, which are not motor vehicles or engines, argue Joe Rajkovic, director of governmental affairs and communications for the trucking groups, and Ken Lund, a vice president with the Allen Lund Co.

CCTA, which earlier this month sued EPA in federal court to challenge an air law waiver for CARB's off-road construction equipment regulation, may also challenge the waiver for CARB's tractor-trailer GHG rules if and when it is approved.

### **32. California Launches Proceeding To Bolster Alternative-Fuel Vehicle Sales**

California energy regulators are expanding the state's aggressive strategy to bolster the sale of alternative-fuel vehicles by launching a rulemaking to evaluate the potential for integration between electric vehicles and the state's power grid, including the use of batteries for demand response and energy storage. The effort will also focus on developing new alternative-fuel vehicle tariffs for each investor-owned utility and exploring additional "financing opportunities" to reduce upfront costs of electric cars and other clean vehicles.

California officials are scheduled to hold a workshop on the rulemaking on December 4, focusing on grid-integration and financing. Written comments on the plan are due December 5.

The new rulemaking by the California Public Utilities Commission (CPUC) adds to several major programs by state agencies to help auto companies sell more plug-in hybrid, full battery-electric, natural gas and hydrogen fuel-cell vehicles, with the overarching goal of helping automakers sell 1.5 million zero-emission vehicles by 2025.

This goal aims to help achieve the state's long-term targets to reduce greenhouse gas (GHG) emissions from the transportation sector, as well as Gov. Jerry Brown's (D-CA) 2012 ZEV Action Plan calling for multiple actions by state agencies to incentivize and accommodate clean vehicles in the coming years.

On November 14<sup>th</sup>, CPUC approved an "order instituting rulemaking" for the alternative-fuel vehicle strategies. The first track of the rulemaking will focus on "policies, guidelines and implementation strategies to facilitate utility participation in vehicle-grid integration," the order says. "The need for and adoption of rule changes, new rules, pilot programs and Research, Development and Demonstration (RD&D) projects and financing alternatives will be considered."

The second part will examine new clean-vehicle tariffs, "new and existing rate structures and design for residential, workplace and medium/heavy-duty vehicle rates," the order says.

The effort also intends to finalize "submetering" protocols to allow the use of customer-owned meters for utility billing, the ruling says. Utilities and car charging service companies have been debating who should shoulder most of the economic burden of this proposal.

Regarding power grid integration, CPUC officials will evaluate utility activities that can support initiatives and seek to establish rules that allow utilities, plug-in electric vehicle drivers, and the grid to capture the benefits of plug-in vehicle battery storage "for the managed charging, and for providing demand response ancillary services to the grid and power markets," the order states.

Grid integration is in part intended to "help reduce the negative impacts of peak-time charging and an opportunity to integrate renewables into the grid," according to the order. A car charging unit can provide several benefits to the grid, including responding to ramping needs, providing load to absorb renewable energy during times of over-generation and avoiding local distribution impacts by minimizing charging when the local system is overloaded, according to the CPUC document.

Vehicle batteries can be used for storage after they are no longer useful for transportation, the order says. "Developing a method to use these batteries as grid storage after they are removed from the vehicle would 'unlock' this future value to vehicle owners, increasing the total value of electric vehicle ownership."

The second track of the proceeding will delve into possible changes to residential and workplace electricity rates to enhance ZEV sales. CPUC "will look to incorporate opportunities for financing, through tariff design, alternative fuel vehicle-related costs," the order says.

Regarding financing opportunities to incentivize vehicle sales, the order mentions "battery second-life financing and property secured loans as opportunities to reduce the upfront cost of vehicles." In addition, financing opportunities "could occur at different levels of the plug-in vehicle value chain, including battery companies, automakers, charge companies, infrastructure

manufacturers, fleet operators and plug-in vehicle drivers. Specifically, we will explore what role, if any, the utility can play in helping facilitate plug-in vehicle-related financing and investment strategies."

The California Air Resources Board distributes about \$30 million collected annually from fees on motorists to subsidize the purchase of hybrid electric and ZEVs by providing \$2,500 rebates to motorists who buy the cars. In addition, the California Energy Commission provides \$100 million annually from fees on motorists to advance clean-vehicle technologies, including subsidizing fleet operator purchases of medium- and heavy-duty natural gas, electric and hydrogen fuel-cell vehicles.

Despite progress in the number and types of electric vehicles being offered by automakers, they "remain more expensive than their gas-power counterparts and upfront vehicle costs continue to be a barrier to electric vehicle adoption," the order says.

### **33. Northeast States Urged To Adopt California's Clean Car Rule Incentives**

Automakers are pushing Northeast states that have adopted California's zero-emission vehicle (ZEV) rule to also implement incentives for ZEVs similar to those in California, such as rebate and infrastructure policies that the industry says are crucial to promoting the vehicles and making the standard workable in the Northeast.

At November 7-8 meetings between the auto industry, state and EPA officials, and vehicle producers reiterated their concerns about the difficulties in complying with the rule, which requires automakers to ramp up the sale of plug-in battery-electric vehicles and hydrogen fuel cell vehicles in the coming years to reach 1.4 million by 2025. Automakers have warned that a lack of infrastructure and incentives could make the rule's targets impossible to meet.

California -- which has Clean Air Act authority to pursue stricter mobile source rules than the federal government sets -- won EPA approval for the ZEV mandate, clearing the path for the other states to adopt it.

Connecticut, Maryland, Massachusetts, New York, Oregon, Rhode Island, Vermont, Maine, New Jersey and New Mexico are the states that have adopted California's ZEV regulation, though not all of those states signed a recent pact to spur higher ZEV sales. Each state has its own ZEV sales mandate depending on its population and vehicle fleet.

Increasing the sale of ZEVs is central to state and federal efforts to reduce greenhouse gas (GHG) emissions. California aims to reduce transportation-related GHG emissions 80 percent below 1990 levels by 2050.

The states have previously noted they are aware of the automakers' concerns, and on October 24<sup>th</sup> signed a pact vowing to take steps such as boosting limited fueling infrastructure that could hinder the rule's success. The recent meetings are also a part of the outreach by states aimed at smoothing implementation of the rule.

Representatives from major auto companies such as Ford, General Motors, Chrysler and Honda, the California Air Resources Board (CARB), the Northeast States for Coordinated Air Use Management (NESCAUM) and EPA attended the meetings.



The meetings -- held in Washington, D.C. -- were divided into two parts. The first involved individual states reporting on how they are readying for more ZEV sales, such incentives being made available, the number of electric charging stations that are in place, investments that have been made, and other steps to get ZEVs on the road. The second part of the meetings was talks between individual states and auto companies on current challenges facing the ZEV market that could hinder meeting the mandate. These include a lack of charging and fueling infrastructure, financial incentives for would-be purchasers of the vehicles, engagement with auto dealers, and consumer awareness of electric vehicles that are being offered for sale.

Automakers reportedly want the Northeast states to adopt incentives similar to those in California in order to boost ZEVs, noting California has in place multiple programs that have funneled hundreds of millions of dollars into building electric charging and hydrogen fueling stations, providing motorists who purchase ZEVs with substantial rebates, and funding research and deployment programs for advanced ZEV power train technologies.

As a result of the recent meetings, state officials agreed to form work groups over the next two weeks to further discuss the challenges of meeting the ZEV mandate in more detail. One work group will focus on how states can "lead by example" by passing policies mandating that their state agency vehicle fleet operators must purchase a certain percentage of ZEVs in the coming years.

Though the auto industry has said it plans to work with state regulators to comply with the ZEV regulations in all 10 states, it has at the same time called on California to conduct an early mid-term review of the mandate based on fears that it will be impossible to comply with given the lack of infrastructure and incentives in the other states. However, CARB Chairwoman Mary Nichols rejected those requests during a board hearing last month.

In addition, officials with Global Automakers are planning to meet soon with EPA Administrator Gina McCarthy to request that the agency take a more aggressive oversight role in helping to ensure the 10 states establish the kinds of programs that will enable auto companies to comply with the ZEV mandate.

Between model years 2018 and 2025, the ZEV sales mandate will require auto manufacturers to sell approximately five million ZEVs cumulatively in California and the other states, regardless of market conditions and infrastructure availability, according to auto industry officials.

#### **34. Advisory Panel Suggests EPA Expand Truck Efficiency Program to Other Sectors**

An EPA advisory panel is suggesting the agency consider expanding its voluntary SmartWay trucking efficiency program to cover more of the trucking freight industry and also include other sectors such as air freight, though some committee members questioned the extent EPA could invest in an expansion, given dwindling resources.

The Mobile Sources Technical Review Subcommittee (MSTR) of the Clean Air Act Advisory Committee (CAAAC) will within weeks finalize a report to the agency detailing the recommendations, which members of the panel previewed at an October 29 meeting. While the report will make a slew of recommendations for expanding the program, it will also advise that EPA be careful not to overburden small businesses, according to panel members.

SmartWay is a public-private partnership between EPA and the freight transportation industry that aims to find ways to improve fuel efficiency -- which reduces emissions -- and save money, which benefits the sector.

EPA launched the program in 2004 focusing on trucking and rail freight, and the success of the program has prompted the agency to weigh options for crediting trucking companies' participation in its SmartWay transportation energy efficiency program as part of its next phase of greenhouse gas (GHG) rules for medium- and heavy-duty vehicles as one potential way to secure additional GHG cuts beyond those in the upcoming rule.

In addition, the agency tasked the MSTR with recommending ways to expand the program, including the potential for covering sectors such as aviation, marine shipping and non-road engines. EPA is also looking at how to expand the program beyond larger trucking companies to include smaller, independent companies.

At the subcommittee's meeting, the co-chairs of a SmartWay workgroup previewed the panel's report and its recommendations for the program. For example, the panel recommended that EPA create air freight and marine "partner" categories, to include foreign and U.S. shippers. EPA should establish methods to enable shippers to assess supply chain GHG emissions across modes of transport, including air cargo and ocean shipping, the workgroup says.

The group further says that EPA needs to establish reciprocity and possibly data sharing arrangements with existing GHG data sets, including those of the Department of Transportation.

In the non-road sector, which includes construction equipment, the workgroup recommends that EPA create a voluntary market-based partnership -- perhaps with a different brand than Smartway -- and also that EPA implement a pilot program with a focus on subsectors of the industry with fixed work sites. Fixed work sites, such as mines and quarries, or predictable goods movement as part of agricultural operations, are simply easier to include in SmartWay than portable sources of emissions, the work group co-chairs explained. In the construction sector, nonroad engines are frequently part of rental fleets and are not being operated by the owner, they said, making participation in a voluntary efficiency program more difficult.

The MSTR is also making recommendations for how EPA can improve its existing SmartWay trucking sector efforts, including a suggestion that EPA limit any new focus on vocational trucks - those used for work-specific purposes, rather than general freight -- only to large fleets, and that efforts to expand the program to "dray" trucks used in ports also be confined to larger trucking companies. A large proportion of dray trucks are operated by small companies or by individual owner-operators, hence limiting the potential expansion of SmartWay in ports.

To counteract the inclusion of only larger trucking companies -- those with 50 or more trucks -- in ports, the work group also recommends that third-party logistics companies be included to help independent owner-operators afford the technology upgrades necessary.

Speaking at the CAAAC panel meeting, OTAQ Director Chris Grundler said that EPA is "launching a national conversation" on how to reduce air pollution in ports, that will culminate in a "ports summit" next year, to include a variety of interested stakeholders.

Other recommendations on the trucking sector include incorporating SmartWay into driver training schools, inclusion of refrigeration systems, and easing and simplifying requirements for small trucking companies.

In the rail sector, the panel recommended streamlining of reporting requirements and incorporation of operational strategies. Such strategies could include scheduling and load-matching, and speed or idling requirements.

The workgroup further sought to ensure that SmartWay "informs" EPA's forthcoming second-phase heavy-duty vehicle GHG standards, in line with EPA's consideration of how to credit the program in the rule.

The draft report also makes some overarching recommendations for the SmartWay program, including enhancing data quality; strengthening the SmartWay brand; strengthening partner recruiting efforts and partner retention efforts; enhancing financing programs; seeking to include black carbon accounting; incorporating operational strategies; efforts to further harmonize global supply chain carbon accounting; and looking for a way to adopt metric measures. Some CAAAC panel members questioned, however, whether EPA would be able to offer more financial support for the program or pay for other aspects of expansion, given a declining overall budget.

### **35. EPA and DOE Release Annual Fuel Economy Guide with 2014 Models**

The U.S. Environmental Protection Agency (EPA) and the Department of Energy (DOE) have released the 2014 Fuel Economy Guide, providing consumers with "Top Ten" lists allowing consumers to see the most efficient advanced technology vehicles as well as the most efficient gasoline and diesel powered vehicles. Consumers will also find a broad range of information in the guide that can be helpful while shopping for a new vehicle— including an estimated annual fuel cost for each vehicle. The estimate is based on the vehicle's miles per gallon (mpg) rating and national estimates for annual mileage and fuel prices. An online version of the guide, available through [www.fueleconomy.gov](http://www.fueleconomy.gov), allows consumers to enter local gasoline prices and typical driving habits to receive a personalized fuel cost estimate. Also, for the second consecutive year, the guide includes a 1-10 greenhouse gas rating for each model, providing a quick and easy way for consumers to identify vehicles with low greenhouse gas emissions.

The EPA fuel economy estimates are the best way to compare the fuel economy among vehicles. Official fuel economy testing is controlled, repeatable, and accounts for a variety of real-world conditions for the average driver, like air conditioning usage and a variety of speed and temperature conditions. Individual mileage will vary depending on factors such as driving style, high air conditioning usage, carrying extra weight and towing, and weather.

### **36. US Questions EU's Stepwise Approach to Climate Deal**

The US has criticized the EU's proposal that countries should put forward their climate commitments next year, followed by a negotiation process culminating with the adoption of a global agreement in 2015. A "robust international assessment" of this kind is needed to ensure that the overall emission reduction commitment is consistent with the goal of keeping global temperature rise below 2°C, the EU believes. But in a submission to the UN ahead of international climate talks beginning in Warsaw a few weeks ago, the US said such a plan would create "a dynamic in which [countries] may well come forward with the minimum credible level of effort, so as to leave room to move in the negotiations".

Without naming the EU, the US said it wants to discourage the "iterative process" that "others have conceived", whereby countries "submit 'offers' but are expected to enhance them on the basis of negotiation".

But the EU and US positions are similar in that they both see the need for a period of review of draft pledges. And in its submission for Warsaw, the EU has acknowledged that it will be up to each country to decide whether to raise their ambition.

However, the US is placing far greater emphasis on the voluntary nature of countries' climate plans. The US envisages a final climate agreement that will contain "a mix of provisions that are legally binding and non-legally binding", whereas the EU is pushing for a legally binding agreement applicable to all countries.

The US says countries should table draft commitments in early 2015, following which governments would give their views on each other's plans and could ask for information to be clarified. Expert bodies such as the International Energy Agency could also analyze countries' proposals relative to the 2C goal.

The EU and US also seem to differ on the issue of measuring 2015 commitments, position papers for the Warsaw talks indicate. The EU has emphasized that countries proposed mitigation commitments must be quantifiable.

But the US argues that "while the bulk of a commitment should be quantifiable... some countries may include elements in their commitments that will reduce emissions, but are not quantified or quantifiable in greenhouse gas reductions".

### **37. Canada Launches New Attack Against EU's Proposed Dirty Oil Rules**

The EU is working on a Fuel Quality Directive (FQD) to cut emissions of greenhouse gases from the transport sector. The directive singles out the tar sands, a move Canada fears could set a bad precedent and hit crucial energy exports. Therefore, Canada has renewed its attack on the EU plan; Natural Resources Minister Joe Oliver released a study - commissioned by Canada's right-leaning Conservative government - that claims the EU directive relied on weak data.

Canada has the world's third-largest proven reserves of crude, much of which is locked in the tar sands of Alberta. Extracting the oil requires more energy than conventional production, a fact regularly highlighted by environmental campaigners.

The report by energy consultants ICF International Inc. said the FQD ignored the fact that the EU uses oil from Venezuela, Iraq, Nigeria and Russia, which burn and release natural gas during extraction. Oil from these nations is therefore sometimes dirtier than tar sands crude, it added.

"The FQD would discriminate against Canada by discouraging EU refiners and consumers from using Canadian crude oil and products, thereby negatively impacting Canada's energy sector," Oliver said in a statement. "We hope the European Union will consider this report's findings as a basis for changes to make the Fuel Quality Directive sound, fair and effective."

Should the measure be adopted, it would have little immediate impact on Canadian oil exports, which are now shipped almost exclusively to the United States. The Conservative government, however, is keen to diversify energy exports and Europe could become a target market if TransCanada Corp builds a planned 1.1 million barrel-per-day pipeline from Alberta to the Atlantic coast.

Last year, amid heavy Canadian lobbying, the EU held an inconclusive vote on the directive and then decided to assess the full impact of the plan. That assessment is due by the end of this year, an EU commission spokesman told the press.

The FQD calls on EU refiners to cut greenhouse gas from transportation fuel by 6 percent by 2020. The EU's executive commission labeled oil sands crude as having 107 grams carbon dioxide per mega joule - making it clear to buyers that the fuel source had more greenhouse gas impact than average crude oil at 87.5 grams. Canada disputes the figure, contending that much conventional production is more carbon intensive than oil sands bitumen.

TransCanada also wants to construct the Keystone XL pipeline to take tar sands crude from Alberta to the United States. Green activists are pressuring U.S. President Barack Obama to veto the project on the grounds it would accelerate the pace of climate change by boosting oil sands production. Obama is due to announce his decision next year.

### **38. D.C. Circuit Scraps Truck NOx Control Waiver Rule**

The U.S. Court of Appeals for the District of Columbia Circuit has scrapped an EPA rule that provided waivers to truck maker Navistar to continue selling heavy-duty engines that exceeded nitrogen oxides (NOx) limits, finding the agency did not provide adequate notice about its plans to alter its policy on when it will provide waivers. The three-judge panel's unanimous December 11<sup>th</sup> ruling is the latest development in a long-running legal battle in which major truck manufacturers have filed four lawsuits challenging EPA rules and their related waivers, called certificates of conformity, that have allowed Navistar to continue selling engines by paying a per-engine penalty. The truck manufacturers say the rules, issued last year, have "tilted the playing field" in favor of Navistar.

The opinion in Daimler Trucks North America LLC et al. v. EPA will block EPA from providing any further certificates of conformity to Navistar that cover 2014 engines, given that there is no longer a valid waiver rule. But it is unclear if truck manufacturers will prevail in their pending legal effort to scrap certificates of conformity issued in 2013 and to potentially file Clean Air Act enforcement suits against Navistar for selling engines that lack valid certificates.

EPA last year -- first in an interim final rule that took effect immediately and later in a final rule -- established a "nonconformance penalty" that allowed Navistar to purchase certificates to allow them to continue to manufacture and sell heavy-duty truck engines that exceeded a NOx emission limit of 0.2 grams per brake-horsepower that came into effect in 2010. The interim rule set a per-engine penalty of \$1,919, while the final rule set a \$3,775 penalty.

The D.C. Circuit last year, in response to the first truck manufacturer lawsuit, vacated the interim final rule, finding that EPA was not justified in avoiding typical notice-and-comment rulemaking procedures, but the court in response to a second lawsuit declined to scrap the \$1,919 per-engine certificates of conformity, finding the case was moot because the engines were already sold.

In the recent Daimler Trucks decision, responding to the third truck manufacturer lawsuit that went through oral arguments on Oct. 22, the D.C. Circuit found that EPA had again failed to provide adequate notice, this time about a change to its own regulations called the "substantial work" criterion that defines when it is warranted to provide Clean Air Act waivers to truck engine manufacturers. For 27 years EPA had a definition that it would be warranted to provide the engine waivers if "substantial work will be required" to meet the emission standard. In the 2012 proposed and final rules, however, EPA said that the waivers were warranted if "substantial work was

required" to meet the NOx standard. The truck manufacturers said that EPA had failed to provide adequate notice that the agency was planning to amend its regulatory definitions, and the D.C. Circuit in its ruling agreed, finding that although EPA had used the "was required" language in its proposed rule and other documents, the agency had not clearly announced plans to make the definition change.

With the ruling, the truck manufacturers will be able to pursue their pending lawsuit challenging the 2013 engine certificates of conformity, a case that had been stayed in the D.C. Circuit, though they could face the same mootness issue of the second lawsuit if the case drags well into next year, at which point the engines at issue may have already been sold.

### **39. U.S. Northeast States Ask EPA to Crack Down On Midwest Pollution**

Eight Northeastern and mid-Atlantic governors have petitioned the U.S. Environmental Protection Agency to require "upwind" states in the Midwest and south to curb ozone-forming pollution from their power plants, which they say travels downwind and poses health risks to their citizens. They want the EPA to force nine states - Illinois, Indiana, Kentucky, Michigan, North Carolina, Ohio, Tennessee, Virginia and West Virginia - to regulate the emissions that cross into their borders through prevailing winds and contribute to higher ozone levels to the north and east of the upwind states.

The move comes just ahead of a closely watched Supreme Court review of an earlier appeals court rejection of the EPA's Cross-State Air Pollution Rule. (See Below)

The governors, led by Delaware governor Jack Markell, said the upwind states had failed for decades to install the technology needed to contain emissions of organic compounds (VOCs) and nitrogen oxides (NOx), which cause asthma and other respiratory diseases and contribute to as much as 98 percent of the ozone air pollution problems in their own states.

The petition asks the EPA to require the upwind states to join them in an "Ozone Transport Region," which under the federal Clean Air Act would force actions to limit air pollution consistent with the efforts of the "downwind" states. Under that kind of pact, the Midwestern states would need to install what are known as best available control technologies to capture the emissions.

Besides Delaware the states petitioning for the controls are Connecticut, Maryland, Massachusetts, New Hampshire, New York, Rhode Island and Vermont.

Markell said downwind states pay the price for other states' failure to install necessary controls. "While Delaware's in-state sources are well-controlled with state-of-the-art technology, this is simply not true of our upwind neighbors," Markell said. "Delaware pays more for healthcare resulting from respiratory illnesses and our industries are forced to do more than those in the states causing the pollution, and that's simply unfair."

Delaware officials said removing an additional ton of pollution in a downwind state, which has already removed most of these emissions, would cost between \$10,000 and \$40,000, but that it would only cost \$200 to \$500 a ton in upwind states, "where even some basic control technologies have not been installed."

Vickie Patton, general counsel for environmental group Environmental Defense Fund, said it is also in the interest of the upwind states to install pollution controls. "Cleaning up this harmful

power plant pollution will mean healthier, longer lives for children, families and communities across the Midwest and the millions of people afflicted in downwind states," she said.

#### **40. U.S. Justices Hint at Support for EPA Cross Border Air Pollution Regulation**

U.S. Supreme Court justices offered President Barack Obama's administration some encouragement as they weighed the lawfulness of a federal regulation. The Cross-State Air Pollution Rule (CSAPR), limiting air pollution that crosses state lines, mostly emissions from coal-fired power plants. Although it was unclear how the court would rule, a majority of the eight justices hearing the case at points in the 90-minute argument voiced some support for the regulation, which has been challenged by some states and industry groups. (The ninth justice, Samuel Alito, recused himself from the case for undisclosed reasons.)

The government is defending a regulation issued under the federal Clean Air Act that had been due to go into effect in January 2012, requiring some states to cut the smog and soot that travels from their power plants downwind to states further east. It requires 28 states to reduce emissions of sulfur dioxide and nitrogen oxides, was put on hold while courts weighed the challenges.

In striking down the rule in August 2012, the U.S. Court of Appeals for the District of Columbia Circuit wrote in part that the U.S. Environmental Protection Agency could not impose a federal plan on a state until the state was given notice of the amount of pollution it emitted that makes it more difficult for other states, downwind, to meet government-set air quality standards. The appeals court also found that EPA authority was limited over what factors it could consider when setting targets for the states.

The Obama administration appealed the decision to the Supreme Court.

When the high court agreed to take up the case, it did so by saying it would consider three questions raised by EPA in its appeal: whether the D.C. Circuit lacked jurisdiction to address some aspects of its opinion, if states can wait to adopt their own SIPs to address cross-state pollution until after EPA quantifies their interstate pollution obligations, and if the agency is allowed to consider the cost-effectiveness of interstate air pollution reductions.

At arguments, the justices side-stepped procedural arguments raised by EPA over whether the D.C. Circuit had the authority to rule on issues the agency said were not properly raised in the appellate court litigation. On appeal, EPA has argued that the opinion did not just vacate CSAPR, but also amounted to a "collateral attack" on several other agency rules that disapproved SIPs for failure to meet their good neighbor obligations under the air law. The agency has said the court lacked jurisdiction to address those past SIPs, as the deadline for judicial review had already passed, and also exceeded its jurisdiction to scrap CSAPR based on statutory objections not raised in public comments on the CSAPR rule. Under what is known as the "exhaustion requirement" of the Clean Air Act, parties cannot sue EPA for issues that were not raised during the public notice and comment period.

Both Chief Justice John Roberts and Justice Anthony Kennedy, two members of the conservative wing of the court, offered some encouragement to the administration. Roberts challenged Jonathan Mitchell, a lawyer representing Texas and other states that object to the regulation. Mitchell said the EPA had "left states completely in the dark" about what their obligations were.

In his response, Roberts seemed to defend the EPA's approach while acknowledging the difficulties facing the states. "It seems to me that if EPA had taken a different view, it would have

been contrary to the statute," he said. Roberts also appeared receptive to the administration's argument that it could consider cost-effectiveness when determining what emissions reduction goals a state should face.

The administration says that the Clean Air Act requirement that the EPA and states limit pollution that will "contribute significantly" to another state's air quality problems is not limited to consideration of the amount of pollution. The agency can also take into account how difficult it is to reach a particular target, government lawyers say.

Roberts used a basketball analogy in an exchange with Peter Keisler, a lawyer representing business interests challenging the EPA rule. "If you ask the coach what significantly contributed to the loss, he's going to talk about the missed layup rather than the missed desperation throw, even though, as far as amount, each was going to count for two points," he said.

Kennedy also seemed sympathetic to the cost-effectiveness argument. "Can't you say that the contribution in one case is more significant than the other, based on feasibility?" he asked Keisler.

Throughout the argument, the liberal members of the bench stressed that states could still have a say in the process even after EPA has told them what their targets should be. Under the Clean Air Act, states can make a counter-proposal at a later date, Justice Elena Kagan and others said. A ruling for the EPA would not be "the end of the game," she said.

Justice Stephen Breyer, another justice on the liberal wing, noted that the approach taken by the EPA might actually be the least troublesome way of addressing the issue. In an exchange with Mitchell, he indicated that the alternative would be to burden states with expensive targets that do not have a huge impact on air pollution. "It sounds to me like you are asking them to do the impossible," he said.

A ruling is expected by the end of June.

Following the oral arguments, several court observers suggested that the eight high court justices that heard the case could vote either 5-3 or 6-2 in EPA's favor and reverse the U.S. Court of Appeals for the District of Columbia Circuit ruling that scrapped the policy. The appellate court's 2-1 majority ruling said the agency exceeded its air law authority with CSAPR and erred in its implementation of the rule.

Justice Clarence Thomas did not speak at oral arguments, but conservative Justice Antonin Scalia asked questions harshly critical of the agency's rule. For example, when DOJ's Stewart pointed to the briefs of states allied with EPA in the case, which testify that some states have successfully calculated significant contribution and had good neighbor SIPs approved by EPA, Scalia said, "Well, that just means it's pin the tail on the donkey. Some states got the tail. I mean, you know, they pinned it in the right place. That doesn't prove anything."

One of the primary issues in the case is whether EPA had the authority to impose CSAPR on states using FIPs without first allowing them to develop their own plans. EPA when promulgating its rule started from the position that most states in the 28-state region covered by CSAPR had already missed a statutory three-year window to craft SIPs to eliminate their NOx and SO2 missions that "contribute significantly" to the problems of another state downwind in meeting federal air standards, a requirement established under the law's "good neighbor" provision.



EPA in its FIPs set states' emissions "budgets," or caps on emissions, in order to operate a cap-and-trade system. CSAPR's opponents, including some states and utilities, argue that this violates the Clean Air Act's system of "co-operative federalism." The D.C. Circuit in its 2-1 ruling vacating CSAPR in August 2012 agreed, saying that EPA must first define significant contribution for each state, then allow states three years to develop a SIP.

Roberts told Department of Justice (DOJ) lawyer Malcolm Stewart, representing EPA, "you would impose on those states the burden to issue the good neighbor program without knowing how much you expect them to -- to meet." Stewart replied that "it's the statute that imposes the obligation on the states."

Questioning Texas Solicitor General Jonathan Mitchell, representing states and cities opposed to CSAPR, Roberts appeared to acknowledge the constraints EPA was operating under in writing CSAPR, saying that for states to first attempt to craft good neighbor SIPs "is certainly hard, but it is what the statute says; and it seems to me that if EPA had taken a different view, it would have been contrary to the statute."

Kennedy, questioning Mitchell on the same issue, said, "at least if you've adopted a SIP or proposed a SIP, you've given reasons, you have a -- you have a rational plan, and the EPA then must give a reasoned response to it. Whereas, if the EPA is the first one, they're writing on a blank slate; and it seems to me that in some respects, the EPA is more constrained under this process to which you object." Mitchell argued that EPA in CSAPR changed its own interpretation of the air act since issuing its NOx SIP Call, an earlier emissions trading program in which EPA calculated states' reduction commitments first, rather than opting straight for FIPs. "Once EPA asserts that exclusive interpretive authority over the provision, the states have no obligation to guess at what EPA might do in the future when they submit the SIP," he argued.

Kennedy also indicated support for EPA's approach on the second key issue in the case -- the content of the FIPs, which industry said unlawfully "overcontrolled" sources in some states and was unreasonable. EPA when setting emissions budgets under CSAPR did not make emissions reduction obligations proportional to a state's "significant contribution," but instead factored in cost-effectiveness considerations that advocates say render the rule cheaper to implement on a national scale. EPA's cost thresholds prohibit the agency from considering controls costing more than a certain amount per ton of pollution reduced when calculating significant contribution.

The question is whether overcontrol is permissible, and the D.C. Circuit's alternative is feasible. EPA says the D.C. Circuit's plan cannot be implemented and is overly simplistic. Sotomayor and Breyer argued in favor of EPA's discretion to craft a rule in a cost-effective manner.

Kennedy questioned attorney Peter Keisler, representing industry opponents of CSAPR, on whether feasibility can be factored into EPA's analysis of what constitutes "significant" contribution. "Can't you say that the contribution in one case is more significant than the other based on feasibility?" he asked.

Keisler said, "I don't think that is a proper definition of 'significant' when it's modifying 'contribution to nonattainment'" by a state of federal air quality standards.

Scalia, also questioning Keisler, said the debate over the meaning of "significant contribution" was misplaced. "It isn't contributions to nonattainment. It's the word 'amounts.' The statute prohibits activity within the state from emitting any air pollutant in amounts which will contribute

significantly. . . . Amounts are amounts," which precludes inclusion of cost-effectiveness or other considerations into the significant contribution analysis.

Kennedy, however, was not so sure, telling Keisler that "the word 'significantly' does import a judgmental component" -- an issue on which Roberts appeared to agree.

#### **41. EPA Tells Court U.S. Mercury, Toxics Rule Is Legally Justified**

The U.S. environmental regulator argued in court recently that its rule limiting mercury and hazardous air pollutants is "appropriate and necessary," not an improper interpretation of the federal Clean Air Act as industry groups and some states contend. The U.S. Court of Appeals for the District of Columbia Circuit, the second most powerful court in the country behind the Supreme Court, heard two cases challenging the Environmental Protection Agency's first rules to crack down on mercury from the country's fleet of electric generating units.

The EPA's Mercury and Air Toxics Standard (MATS) applies to 1,400 of the country's largest power plants and would come into force in 2015, or in some cases, 2016.

The MATS rule was finalized in December 2011 but has been subject to several petitions for reconsideration from groups ranging from pollution control equipment vendors to power plant developers. The EPA has said that MATS could prevent up to 11,000 premature deaths, and generate \$90 billion in health benefits, each year.

The three-judge panel asked a number of detailed questions to the dozen or so lawyers representing the EPA, green groups, the energy industry and states. The judges appeared skeptical of industry's argument that the agency did not take the proper steps to determine that it was "appropriate and necessary" to regulate those pollutants.

Neil Gordon, Assistant Attorney General for the state of Michigan, which opposes MATS, said the EPA's interpretation of the word "appropriate" was unlawful since the agency did not weigh regulatory costs in its decision to regulate the pollutants. But Chief Judge Merrick Garland, a Democratic appointee, questioned Gordon's argument, saying, "nowhere does Congress require (the EPA) to evaluate cost" in its determination for the need to curb mercury and other toxic substances to protect public health.

Arguments at the hearing, held even though the court was closed for a snow day in Washington DC, lasted nearly four hours. That was longer than planned and longer than arguments in similar regulatory cases, observers said.

"The panel was well versed in the case and thoroughly read the briefing. The questions were really probing around the salient issues," said John Suttles, a lawyer for the Southern Environmental Law Center who represented the American Lung Association as an environmental intervener in the case. He said the EPA made a strong case that it was within its rights in regulating the pollutants and that he "didn't really see an indication that court disagreed with EPA."

But Eric Groten, an industry lawyer specializing in the Clean Air Act for law firm Vinson & Elkins, said he would be surprised if the MATS was affirmed in its entirety. "There were so many issues argued that it increases the chance the EPA got something wrong," he said.

A conclusion to the case will end years of "pingponging" between the EPA and the DC Circuit court.

## **42. Ontario Lags in Curbing Greenhouse Gases from Transportation Fuels, Official Says**

The Ontario government has stalled in its efforts to reduce greenhouse gas emissions from transportation fuels, largely due to its failure to introduce a low-carbon fuel standard, provincial Environmental Commissioner Gord Miller said recently. The province committed in 2007, jointly with California, to reduce the carbon intensity of transportation fuels by 10 percent by 2020 from 2007 levels to reduce carbon dioxide emissions. But unlike California Ontario has made little progress toward implementing a low-carbon fuel standard to achieve that goal, Miller said in a statement on release of the second volume of his "Annual Energy Conservation Progress Report: 2012". The provincial government should transfer responsibility for developing and implementing a low-carbon fuel standard to the Ministry of the Environment from the Ministry of Energy, he said, as the environment ministry has a strong track record on fuel regulation, including minimum ethanol levels in gasoline and a proposal to require biodiesel use in motor fuels, he said.

Provincial Energy Minister Bob Chiarelli said that his ministry will review the report's comments and recommendations but added that the government's budget for fiscal 2013-2014 already included a promise to consult with stakeholders on a provincial mandate for greener diesel fuels. "As the province plans for Ontario's electricity needs for the next 20 years, conservation will be the first resource considered," Chiarelli said in a statement.

The Ontario government is taking other steps to improve fuel conservation, including the Ethanol in Gasoline Regulation, which since 2007 has required 5 percent minimum ethanol content in gasoline sold in the province, Beckie Codd-Downey, Chiarelli's press secretary, said. The province also has put in place tax incentives for the use of natural gas, propane and electricity by the transportation sector and supports new electric vehicle purchases through an incentive program administered by the Ministry of Transportation, Codd-Downey told the press.

On electricity conservation, Miller said it is unlikely Ontario's electricity distributors will meet 2014 targets set by the provincial government to reduce peak electricity demand by 1,330 megawatts from 2007 levels and total electricity consumption to 6 billion kilowatt-hours. At first glance, the new plan appears to have fewer and less ambitious target, he said. For example, there are no longer interim targets for peak demand or consumption, he said. However, the new plan proposes development of a new framework for conservation by electricity distributors to replace the one that expires in 2014, he said.

Chiarelli said that a new Long-Term Energy Plan, issued on December 2<sup>nd</sup>, includes a new target for total electricity consumption of 30 terawatt-hours by 2032, which would represent a 16 percent reduction from forecast gross demand in that year, and a target of using demand response to meet 10 percent of peak demand by 2025.

## **43. Ontario to Announce Lower Fees for Drive Clean Vehicle Emissions Tests**

Ontario's Liberal government plans to lower the \$35 fee for the Drive Clean vehicle emission tests. Drive Clean is supposed to be a revenue-neutral program to get cars that spew pollution off the road, but it is now turning a profit of \$19 million. The government has promised to address the issue and lower the charge that drivers pay every two years to get their vehicles tested, but still haven't said what the new rate will be.

The Progressive Conservatives say Drive Clean, which was introduced in 1999, has outlived its usefulness and should be eliminated because most cars and light trucks easily pass the test. Ontario changed its Drive Clean procedures last January to use onboard diagnostic testing equipment instead of tail pipe emissions, which has led to an average 10 per cent failure rates.

The emissions tests are mandatory for vehicles at least seven years old.

#### **44. Recent Developments Regarding Keystone Pipeline**

##### **Canada Short On Time for Climate Change Concession**

Canada is running out of time to offer U.S. President Barack Obama a climate change concession that might clinch the controversial Keystone XL oil pipeline, as the country's energy industry continues to resist costly curbs on greenhouse gas emissions. Two years of negotiations between the Canadian government and the energy sector to curtail carbon pollution have not produced an agreement. Oil producers have balked at anything more than the 10-cents-a-barrel carbon tax imposed by the province of Alberta.

Late last month, Environment Minister Leona Aglukkaq pointed to "good progress" in the talks but was unable to say when a resolution might come.

Concessions from Canada would arguably make the pipeline more palatable in Washington since Obama has made fighting climate change a second-term priority and has said that Canada could do more to reduce carbon emissions.

By linking Alberta's fields to refiners in the Gulf Coast, the 1,200-mile (1,900-kilometer) Keystone XL pipeline would be a boon to an energy patch where oil sands are abundant but lead to more carbon pollution than many other forms of crude. Keystone's foes say that burning fossil fuels to wrench oil sands crude from the ground will worsen climate change, and that the \$5.4 billion pipeline, which could carry up to 830,000 barrels a day, would only spur more production.

Increasing oil sands production will put Canada on track to miss its target of curbing greenhouse gas emissions by 17 percent below 2005 levels by 2020, according to a government report. Keystone supporters say that is why Canada would be wise to offer a carbon-trimming plan before the White House decides the pipeline's fate.

But the clock is running out. The U.S. State Department is finishing work on a report that will weigh the climate impacts of the pipeline in what could be one of last words before a decision. The White House is expected to rule on Keystone by next spring.

Canada and the United States have often moved together on climate policy, developing similar rules on auto and power-plant emissions while turning their backs on the Kyoto Protocol to limit climate change. Regulating the oil and gas sector has been thornier, though, with oil sands producers particularly concerned that higher costs will erode their already narrow margins.

Canada's fast-growing oil sands sector will soon exceed the capacity of existing pipelines, and analysts say producers will be forced to rely on trains, barges and other transportation alternatives if Keystone XL and related projects are rejected. Those options are generally costlier and less certain than pipelines.

Nevertheless, industry executives say they doubt yielding on tougher pollution regulations will help secure Keystone. Even if Prime Minister Stephen Harper were to offer new greenhouse gas limits this year, the vagaries of the regulatory process virtually guarantee those plans will not be in place until after a Keystone decision. For example, Canada needed 12 months to finalize regulations curbing emissions from coal-fired power plants that were ratified last year, and the rules were significantly weaker in the end than originally proposed.

### **House Democrats Urge Delay for NEPA Study**

House Democrats are urging the State Department to delay release of a supplemental National Environmental Policy Act (NEPA) review of the controversial Keystone XL pipeline until at least February, when the department's Inspector General (IG) is expected to complete a report on alleged conflicts of interest by the contractor that drafted the study.

Supporters of the Keystone pipeline, which would transport Canadian tar sands oil into the United States, continue to press for President Obama to swiftly issue a necessary presidential permit for the project. On December 12<sup>th</sup>, the American Petroleum Institute (API) touted poll data showing ongoing public support for the pipeline, and advocates of the project argue that it will help bolster energy security, provide an economic boost, and have other benefits.

Many Democrats and environmentalists however remain opposed to the pipeline over concerns that it will have major adverse environmental impacts. Keystone opponents have faulted a prior NEPA-mandated environment review of the pipeline, and the State Department is working to finalize a further review of the project that has also garnered scrutiny due to the contractor's alleged conflicts and whether the company improperly hid relationships with the project's oil industry backers.

In a December 12<sup>th</sup> letter to Obama, the lawmakers urge the Department to hold back on issuing the revised EIS -- expected this month or early next year -- until completion of the IG's review. "The integrity of contractors is essential to the National Environmental Policy Act process. If the allegations that ERM lied to the Department of State about its conflicts of interest turn out to be true the Department of State must conduct a new EIS that is not tainted by conflicts of interest," the lawmakers say.

### **Canadian Envoy Says Growing Rail Traffic from Oil Sands Should Sway Critics**

Canada's U.S. ambassador said the fact that rail lines are carrying more heavy crude from the Alberta oil sands than before should prompt President Barack Obama to approve the Keystone XL pipeline. "The facts basically speak for themselves," Gary Doer said in a press interview at the Canadian Embassy in Washington. Pipelines are safer, cheaper and release less carbon dioxide, a greenhouse gas, than rail does, he said.

Environmentalists have criticized the State Department draft analysis and pointed to other assessments by groups including Goldman Sachs Group Inc. that show development of the oil sands could be delayed if Keystone were blocked.

Doer said the pipeline would cause less harm to the environment than rail lines. "I deal with lots of issues," Doer said. "Some are really kind of on-the-one-hand or the other. This is actually bang, bang, bang. Higher cost, higher risk, higher" greenhouse gases.

#### **45. Industry Warns Pending Court Ruling May Undo Consent Decree Certainty**

Engine maker Volvo Powertrain is warning the U.S. Court of Appeals for the District of Columbia Circuit against issuing a ruling in a pending lawsuit that the company says could create uncertainty over future consent decrees between the agency and industry, saying the court should back Volvo Powertrain's push for certainty.

Attorney Aaron M. Streett, representing Volvo Powertrain, outlined the potential precedent of the court's eventual ruling at December 11<sup>th</sup> oral arguments in *USA v. Volvo Powertrain Company*, a suit in which the company seeks to overturn a federal district court ruling that awarded EPA and California millions of dollars in damages for its violation of a consent decree. The decree settled a years-old dispute between several engine makers and EPA over agency claims that engine makers used devices that allowed higher emissions in real-world conditions than under test conditions.

Volvo Powertrain is the successor company to Volvo Truck and inherited the settlement's obligations for its engines to meet prescribed emissions standards according to a timetable laid out in the decree.

The decree was subsequently extended to include non-road engines. But Volvo Powertrain, part of the Volvo Group of companies, says the court's enforcement of the expanded decree against it for infractions by Volvo Penta, a non-signatory to the pact, violates "bedrock" legal principles and creates uncertainty over the decrees.

Streett told the court at arguments that enforcing the decree against Volvo Powertrain because of infractions by the non-party Volvo Penta was unjustified. He also warned that the failure of a district court to weigh the case using the legal doctrine of "contempt," if upheld on appeal, will shake the faith of industry in consent decrees.

In a joint amicus brief filed with the court, the National Association of Manufacturers, U.S. Chamber of Commerce and the American Petroleum Institute also highlighted the precedent the case could set, saying enforcement of the decree against a non-signatory will set a damaging precedent, damaging faith in the certainty of consent decrees.

Streett at arguments did not address the issue in such broad terms, but did tell a three-judge panel of the D.C. Circuit that the April 2012 ruling by the U.S. District Court for the District of Columbia wrongly failed to examine the matter under contempt standards. These require that a party seeking relief -- such as EPA -- must establish "by clear and convincing evidence" that the defendant violated a "clear and unambiguous provision of the consent decree."

"It is very important the contempt standard applies whenever the government seeks retrospective enforcement of a consent decree," Streett said. EPA's actions show the agency "doesn't want the protections" for companies "at the front end" that the contempt standard provides, he added.

Department of Justice attorney Brian Toth, representing EPA at arguments, said that even if the contempt doctrine were applied by the court, it is irrelevant because there is a "clear and unambiguous violation of the decree." Specifically, EPA says that Volvo Powertrain violated "non-circumvention" terms of the decree designed to prevent parties avoiding responsibility by spinning off operations to other corporate entities.

Judges David Sentelle, Thomas Griffith and Sri Srinivasan pressed both sides over the meaning of terms specific to the decree, but gave little indication of how they will decide the case -- and they avoided questions over the broader precedent for EPA consent decrees that their eventual ruling could set.

Sentelle and Griffith suggested that if read in isolation, some of the decree's terms include the engines certified by Volvo Penta, but Streett urged them to look at the issue in a broader context. Under questioning from Sentelle, Streett suggested that other ambiguities in the case still render the district court's judgment wrong -- such as whether the engines should have been classed as non-road engines, or instead as stationary engines clearly excluded from the decree. Toth countered that tracking the use of the engines to determine if they are stationary is not feasible.

Also, Streett said the lower court's application of the maximum penalties allowed warrants, at the very least, a remand of the judgment. The district court applied the penalty to all wrongly certified engines, even though many were never imported into the United States. Further, there was no "unjust enrichment" or "competitive advantage" bestowed by the certification, Streett argued, citing the standards used by the district court to determine that the maximum penalty should apply.

Griffith appeared somewhat sympathetic to Streett's position on when the anti-circumvention provisions are triggered. Griffith asked "isn't the trigger when someone seeks the certificate of conformity" with EPA standards? Streett replied, "That is absolutely the correct reading. There is nothing that connects Penta's certification of engines" to the consent decree.

Sentelle asked Streett to explain why the case seems to be "the equivalent of a contempt proceeding, but it is not a contempt proceeding." Streett replied that "it is the [retroactive] nature of the relief" that determines whether the doctrine applies, according to legal precedent, not whether the case is expressly labeled as such by the government or courts.

#### **46. EPA Urged To Deny Mercedes' Request for 'Off-Cycle' Vehicle GHG Credits**

California, some automakers and environmentalists are urging EPA to deny Mercedes-Benz' petition seeking credit for "off-cycle" greenhouse gas (GHG) reductions in the agency's model year (MY) 2012-2016 vehicle GHG rule, saying that granting the request would set a precedent undermining the certainty of GHG cuts under the rule.

EPA took comment through October 31<sup>st</sup> on the company's petition, which is part of a process under the rule that allows manufacturers to submit for agency approval an alternative demonstration methodology to win higher off-cycle GHG credits than what the agency lists as default values and can be used to comply with the regulation. Off-cycle credits can be awarded for technologies that achieve real-world emissions cuts "but are not appropriately captured on the test procedures . . . to demonstrate compliance" with the rule, which requires automaker fleets to achieve a 35 mile per gallon (mpg) in 2016, EPA says.

Mercedes-Benz is the first company to submit such a petition, seeking credit for an engine start-stop technology that eliminates all emissions when a vehicle is idling. The company also wants credit for high-efficiency exterior lighting, infrared window glazing and active seat ventilation, according to the petition. The company argues that it should be entitled to GHG credits for a larger percent of driving time than EPA estimates vehicles idle in order to fully count the emissions reduced by its start-stop technology.

But the request is prompting significant push-back from California -- which worked closely with EPA to develop the MY 2012-2016 vehicle rule -- other automakers and environmentalists. The California Air Resources Board (CARB) warns that approving the petition would reduce the expected GHG reduction benefits of the vehicle rule by allowing the company to obtain "unrealistic" off-cycle credits, while also setting a precedent for other automakers to seek similar credit. "[I]f this credit request is accepted, it will create a platform for manufacturers to undermine" the MY 2012-2016 rule as well as the final MY 2017-2025 program that sets fleet averages at 54.5 mpg, CARB Chairwoman Mary Nichols writes.

CARB says it backs the off-cycle credit petition program in general, but not Mercedes' petition as it would allow the company "to generate unrepresentative GHG credits and undermine the effectiveness of the rule." For example, the request for stop-start technology GHG credits is more than three times the value on an EPA-issued menu of options, with Mercedes claiming EPA's value was an underestimate, CARB says. "If a petition like this is accepted, it would set a precedent allowing manufacturers to derive their own credit values for off-cycle technologies that exceed the menu values while still being able to use the default menu values for technologies that fall short."

#### **47. Obama Doubles Agencies' Renewable Energy Goal**

President Obama has signed a memorandum to more than double the amount of power obtained by federal agencies and departments from renewable sources. In a December 5<sup>th</sup> memo -- implementing key parts of Obama's Climate Action Plan -- the president directed agencies to meet an increasing amount of their energy needs through renewables between now and 2020, starting with 10 percent or more in fiscal year 2015 and rising to 15 percent in 2016, 17.5 percent in 2018 and 20 percent in 2020. Agencies are ordered to implement the goal "to the extent economically feasible and technically practicable."

In addition, the memo directs agencies to take several steps to improve federal energy management, including installations of new building energy meters and sub meters, public disclosure of annual "benchmark" data and efforts to increase use of a consensus based "Green Button" standard for managing energy data.

The memo prioritizes agency efforts to install renewable energy on-site over other steps such as buying renewable energy certificates (RECs). It also orders that within 120 days the Department of Energy in coordination with EPA, the Department of Defense, the Department of Veterans Affairs, and other agencies provide recommendations to the Council on Environmental Quality on recommendations related to use of RECs to meet the goals.

The directive to federal agencies implements a goal for renewables use by 2020 already outlined in more general terms in the administration's June 2013 climate action plan.

Following Obama's announcement, Sen. Mark Udall (D-CO) -- a longtime backer of national renewable targets -- renewed calls for Congress to advance his bill to create a national renewable portfolio standard to require 25 percent renewable energy by 2025. Congress still needs to codify a higher federal renewable electricity standard into law, but the president's announcement underscores that this is the right policy," Udall said.

Consensus on federal legislation to boost renewables has proven elusive, though more than half of the states have instituted some kind of renewables target and in 2013 largely rebuffed attempts to repeal the requirements.



Meanwhile, on December 5<sup>th</sup>, federal agencies announced the release of their 2013 Strategic Sustainability Performance Plans, which detail their efforts to reduce waste and conserve energy. EPA's plan will help "guide EPA's actions to meet the new goal President Obama set today with a Presidential Memorandum directing the Federal Government to consume 20 percent of its electricity from renewable sources by 2020 -- more than double the current level," the agency said in a Dec. 5 statement.

Meeting this renewable energy goal will reduce pollution in our communities, promote American energy independence, and support homegrown energy produced by American workers," EPA said.

Among the steps outlined in EPA's plan are pursuing reconstruction of key research infrastructure to reduce energy consumption, and continuing work on the agency's water conservation program.

## ASIA-PACIFIC

### 48. Recent Developments in China

#### China Launches Cleaner Gasoline Standards

China has launched its national "V" standard for gasoline which will become a national mandate from Jan 2018, the government said, as it moves to clean up smoggy air in the world's largest auto market and the second largest oil consumer. "The roll-out of the standard will help upgrade China's gasoline quality and reduce pollutants from vehicles," the General Administration of Quality Supervision, Inspection and Quarantine said on its website.

The new national V standard, similar to Euro V, will require gasoline to have a **sulfur content of no more than 10 parts per million (ppm)**, down from 50 ppm in the national IV standard, the administration said.

China is moving to the national IV standard, similar to the Euro IV standard for gasoline nation-wide from next month, though about a dozen cities have already started using the cleaner grade V, supplied by Sinopec Corp. China is now implementing the national III standard for gasoline — with sulfur content capped at 150 ppm — across the country. The national IV standard for gasoline will become compulsory nationwide from the start of 2014, the government said.

The new specifications of national V also require content of **manganese** — another health hazard — **to be cut to 0.002 gram per liter from 0.008 gram**, it said.

After the new standards take effect from January 1, 2018, emission from existing vehicles could be reduced by 10 to 15%, while emission of nitrogen oxide from new vehicles is expected to be cut by a quarter and emission of particulates by 80%, it added.

Worsening air pollution has prompted China to speed up a timetable for oil companies to roll out cleaner fuel standards, a move that will require refiners to pump in billions of dollars to upgrade facilities. Sinopec has supplied gasoline of quality similar to Euro V

standards to Beijing since May 2012, and to Shanghai and eight cities in the booming eastern province of Jiangsu from November, the company has said. Its Jinling refinery in Jiangsu is now China's largest producer of Euro V gasoline, Sinopec has said.

### **China Likely to Meet Reduction Targets for Key Pollutants in 2013, Ministry Says**

Chinese environmental minister Zhou Shengxian said he expects the country to meet annual reduction targets for four key pollutants by the end of 2013, according to a notice released by the Ministry of Environmental Protection on December 4<sup>th</sup>. The notice said the goals for meeting targets to reduce airborne emissions of sulfur dioxide and nitrogen oxides and for reducing levels of chemical oxygen demand (COD) and ammonia nitrogen in wastewater will likely be met. It based that conclusion on the reductions seen during the first six months of the year, pressure put on local governments to meet targets in the second half of the year, more utilization of desulfurization and denitrification equipment in industry and subsidies for energy conservation projects.

The notice said that COD readings dropped 2.37 percent, and ammonia nitrogen levels were down 2.37 percent nationally in the first half of the year, while sulfur dioxide was down 2.48 percent and nitrogen oxide down 3.02 percent nationally in the first half of the year, compared to the same period the year before.

Goals for the 12th Five-Year Plan (2011-2015) include reducing sulfur dioxide emissions and COD levels by 8 percent and for reducing emissions of nitrogen oxides and ammonia nitrogen by 10 percent by the end of 2015 compared to 2010 levels.

The meeting notice also said that air pollution prevention and treatment plans for the energy industry, as well as several implementation regulations related to coal-fired power facilities, will be released soon.

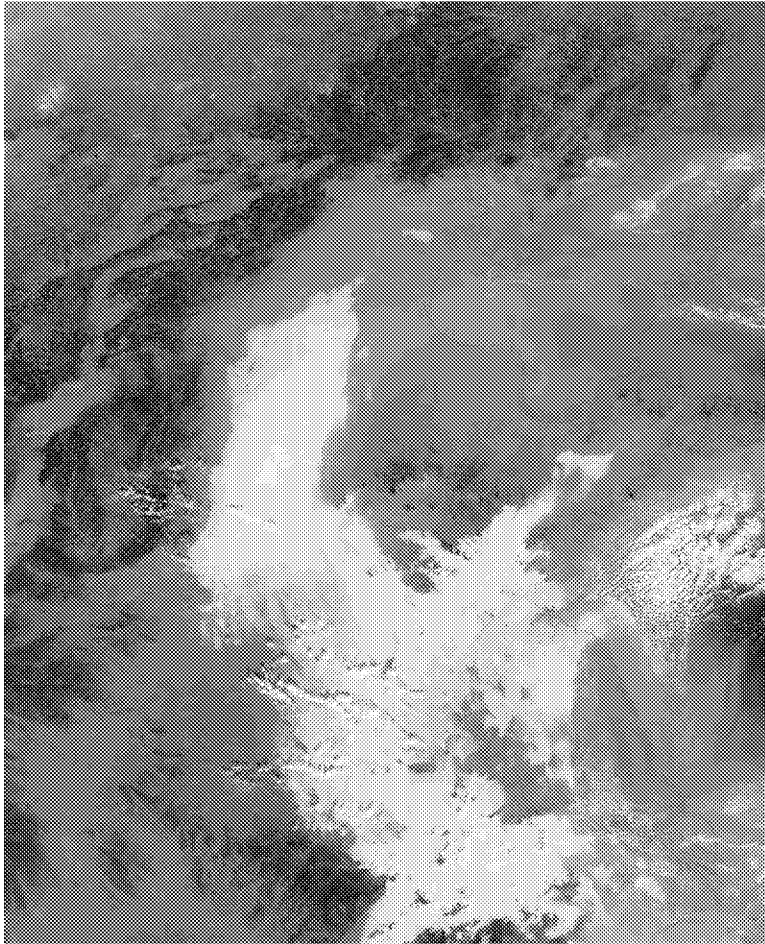
The MEP also is working on a plan for further reducing the four key pollutants for 2014.

### **China's Current Air Pollution Is So Bad, It Is Visible From Space!**

China is currently in the midst of battling a rather astonishing bout of air pollution, most notably in Shanghai and Beijing. Not only is this level of pollution extremely dangerous but it's so thick and blanketing that a new image from NASA shows the smog cloud from space.

The image shows a combination of both fog (white) and smog (grey). On the NASA Earth Observatory blog, they explain:

China suffered another severe bout of air pollution in December 2013. When the Moderate Resolution Imaging Spectroradiometer (MODIS) on NASA's Terra satellite acquired this image on December 7, 2013, thick haze stretched from Beijing to Shanghai, a distance of about 1,200 kilometers (750 miles). For comparison, that is about the distance between Boston, Massachusetts, and Raleigh, North Carolina. The brightest areas are clouds or fog. Polluted air appears gray. While northeastern China often faces outbreaks of extreme smog, it is less common for pollution to spread so far south.



NASA image courtesy Jeff Schmaltz, LANCE MODIS Rapid Response

At the time of this image, the Air Quality Index for Beijing hit 487 — anything above 300 is considered dangerous to human health. The US embassies in Beijing and Shanghai reported fine particulate matter up to 480 and 355 micrograms per cubic meter of air, where being above 25 is unsafe according to the World Health Organization.

This problem isn't unique to China. For decades, London had notoriously bad smog, which at one point killed 4,000 people over the course of just a few days. But what's new is that now we have a much better grasp of the damages this level of pollution can cause, and the technology to see its full extent. Images like this one from NASA provide us with the context of this pollution — and shows just how incredibly large the problem really

is.

### **Eight Chinese Cities Fined For Air Pollution**

Local governments in eight cities in northeast China's Liaoning Province have been fined a total of 54.2 million Yuan (8.9 million U.S. dollars) for air pollution, the provincial department of environment protection said recently. The fines, the first the provincial agency has imposed on lower-level governments, send a clear signal that the provincial government is becoming more serious about tackling air pollution.

According to a regulation which went into effect last year, the Liaoning provincial government evaluates 14 cities on indicators of PM10 (particles less than 10 micrometers in diameter), sulfur dioxide and nitrogen dioxide. Shenyang, capital of Liaoning, was ordered to pay a fine of 34.6 million Yuan. Seven other cities, including Dalian and Anshan, were fined 19.6 million Yuan.

Zhu Jinghai, head of the provincial department of environment protection, said all the fines would be spent in the fight against severe air pollution.

Decades of breakneck economic growth, the coal-dominated energy mix and lax environmental law enforcement are blamed for the prominent pollution in Liaoning and other parts of China. The public hailed a circular released recently on improving the work evaluations of local Party and government leadership and officials, which could lead to greener and more balanced growth. The

circular said Chinese officials should reduce their obsession with economic growth and focus more on people's livelihoods and the environment.

Liaoning was one of the first provinces in China to industrialize and continues to rely on polluting heavy industries like machinery, metal refining, chemical, and petroleum and coal production. In October, it was one of three provinces in northeastern China that found itself suffocating beneath a blanket of smog so heavy that that some schools and roads had to be shut down.

"The circular calls for quality economic growth, a departure from the old extensive growth mode," said a netizen named "Kanshazishadoukan" on Sina Weibo, a popular Twitter-like microblogging service. "It lays out targeted and forceful measures, and I hope the measures will be fully carried out," the microblogger said.

Although Liaoning's fines were small when compared with the 1.7 trillion Yuan China's central government said it plans to invest to improve air quality, they're a sign that local governments are willing to impose punitive measures in the battle to clear the air.

### **Tianjin Curbs Purchase of New Vehicles**

Tianjin has joined other big cities like Beijing, Shanghai and Guangzhou to curb vehicle purchases as worries about pollution and traffic congestion rise around the country.

The purchase restriction led to a rush buying of vehicles in Tianjin and raised fresh doubts over its effectiveness in addressing traffic and environmental problems at the expense of residents' rights to purchase vehicles.



People flood to a local auto market in Tianjin, a day before the city imposed a restriction on the purchase of vehicles. Photo: CFP

The city's municipal government imposed quotas on new license plates, requiring buyers join the lottery or bid in auctions to win a plate, in an effort to optimize the city's traffic environment, ease traffic congestion, improve air quality and ensure a reasonable growth of vehicle numbers,

according to its government website.

"It is a necessary step for big cities like Tianjin to curb traffic congestion before it becomes too excessive," Xu Kangming, a transport expert and founder of consultancy 3E Transportation Systems, told the Global Times.

As a city that holds 14 million permanent residents, Tianjin had 2.36 million registered motor vehicles by 2012, up from 1.2 million in 2006, while the average driving speed on downtown roads during rush hours dropped to 19.5 kilometers per hour in 2011, according to a report by the Tianjin Daily.

"Increasingly heavy air pollution has also triggered big cities like Beijing and Tianjin to intensify limitations on vehicle purchases," Xu added. The Tianjin Daily quoted a 2012 report on the city's environment as saying that vehicle emissions contributed 16 percent of PM2.5, a major pollutant, and are held as a key source of air pollution.

"Curbing car purchases can be an immediate solution to ease air pollution and traffic jams, and it will be adopted in big cities suffering these problems," Niu Fengrui, former director of the Institute for Urban and Environmental Studies under the Chinese Academy of Social Sciences, told the Global Times. "It can't fix the problems completely," Niu said, adding that the causes for air pollution and traffic jams are more complicated than the increasing number of vehicles.

Zhao Ruizheng, a research fellow with the Heilongjiang Provincial Academy of Social Sciences, regards this as a lazy way for the government to deal with problems without researching the underlying cause for traffic jams. "This will exacerbate social inequality and transfer the roads, which are public resources, to privileged resources enjoyed by high-income earners and government vehicles," Zhao was quoted as saying in a report by news portal xinhuanet.com.

Meanwhile, as some locals have expressed concerns over the city's public transportation system, which is less developed than those in Beijing and Shanghai, experts suggest that Tianjin should develop diversified public transportation to ease traffic. "It should be equipped with more suitable public transportation services with more convenient transfers and a low fare," Zhu Shouxian, a research fellow at the same institution as Niu, told the Global Times, adding that urban planning and governance in big cities should be emphasized while managing traffic and pollution problems.

In addition to purchase controls, Tianjin will also follow Beijing's lead by adopting a similar traffic restriction scheme starting on March 1, 2014, which bans one fifth of private vehicles from roads on weekdays, Miao Hongwei, head of the city's traffic management bureau, said at a press conference. Moreover, the city will ban vehicles with non-local plates from driving into the city's outer ring road during morning and evening rush hours on weekdays, Miao said.

### **Biden Reaffirms Cooperation with China on HFCs, Clean Heavy Duty Diesels**

On December 5<sup>th</sup>, U.S. Vice President Joe Biden and senior Chinese officials pledged increased cooperation by both countries—the world's two leading greenhouse gas emitters—on climate change by phasing out fossil fuel subsidies and the global use of hydrofluorocarbons, a highly potent greenhouse gas. The cooperative efforts, pledged following Biden's trip to China which included a meeting with Chinese President Xi Jinping, include a more pronounced push to curb HFCs under the Montreal Protocol on Substances that Deplete the Ozone Layer.

The two countries will establish a new "contact group" under the treaty to focus on HFCs, a rapidly growing greenhouse gas originally developed as an alternative to ozone-depleting chemicals, according to the joint fact sheet on strengthening U.S.-China economic relations released by the White House.

To help accelerate progress on the U.S.-China Climate Change Working Group Heavy-Duty and Other Vehicles initiative, the United States and China committed to implement and enforce their current schedules for implementation of low-sulfur fuel and for motor vehicle emissions standards. Both sides also committed to work together to help China design and implement China VI vehicle emissions standards as soon as practical, strengthen communication in heavy-duty vehicle fuel efficiency standards to reduce greenhouse gas emission, promote the implementation of clean

action plans for heavy-duty diesel vehicles, and explore ways to design and implement the clean action plans for non-road motor vehicles and supporting diesel engines, which would reduce PM2.5 emissions and would have substantial air quality and climate benefits. The United States committed to provide technical assistance to achieve these goals and continue to provide technical assistance on regional air quality management and modeling, including emissions from mobile sources.

### **More Emission Controls Urged in China**

In order to improve air quality, deal with the increasingly serious air pollution problems, and promote the process of motor vehicle fuel desulfurization, an international seminar was held in Beijing on December 9th. The meeting was sponsored by United Nations Environmental Program (UNEP) and jointly organized by the Vehicle Emission Control Center of the Chinese Ministry of Environmental Protection, the International Council on Clean Transportation, and Clean Air Asia.

With global air quality improvement as a starting point and the development process of fuel desulfurization as the main thrust, representatives from governments, international organizations, research institutions and the business community analyzed international and domestic motor vehicle fuel desulfurization routes and shared management experiences of motor vehicle fuel desulfurization promotion.



A man wears a face mask while walking on the Bund in front of the financial district of Pudong during a hazy day in downtown Shanghai on Dec 9, 2013.

The government should set higher standards for vehicle emissions while promoting cleaner fuels to deal with the significant contribution of motor vehicles to air pollution, environmental officials and experts said at the Workshop. More than 100 cities were shrouded in thick smog and haze just

prior to the workshop and national alarms for smog and haze that lasted for seven days were not lifted until that morning, according to the National Meteorological Center.

"Emissions from motor vehicles contribute a significant part to air pollution, sometimes as high as 50 percent, especially in such foggy weather when the air is stagnant," said Lu Shize, air pollution section chief from the Pollution Prevention and Control Department of the Environmental Protection Ministry (MEP).

Two standards systems, one for emissions and the other for fuel, control the pollution coming from motor vehicles.

China should start to prepare for its new China VI emissions standard, which may further reduce the amount of pollutants discharged by motor vehicles by another 40 percent based on the latest China V standard, said Ding Yan, deputy head of the ministry's vehicle emission control center. The Beijing government has vowed to implement the new standard by 2016 at the earliest. No schedule for the introduction of China VI nationally has been announced by MEP.

"There has been criticism of the government for being radical in promoting the development of emissions and fuel standards over the past decade, trying to reach a similar level as developed countries in such a short time," Ding said. "But seen from the perspective of environmental protection, we are being too slow by following the developed countries' steps, when their pollution levels are already much lower than China's."

Research shows that China's latest fuel standard is behind those of Europe and the United States, and has much room for improvement. The sulfur content of gasoline was lowered four times in the past 10 years, with the allowed content dropping from 1,000 microgram per gram to the current 50 mcg per gram. However, the desulfurization of diesel is occurring at a slower pace, with its allowed sulfur content reduced to 350 mcg per gram nationwide on July 1, 2013 from the previous level of as high as 2,000 mcg per gram, which lasted for more than 10 years. The permitted sulfur level for diesel in the European standard is 10 mcg per gram.

"Limits for contents of other pollutants in our gasoline standard, such as olefin and aromatics, are too high, leading to more emissions of toxic particulate matters and complex airborne pollution," said Tong Li, associate professor at the ministry's appraisal center for environment and engineering. Tong added that the high vapor pressure limit in the country's gasoline standard, which is twice the US standard, may cause high emissions of volatile organic pollutants.

Setting up stricter emission and fuel standards does not necessarily mean higher costs, according to studies and foreign experience. "Introducing cleaner fuels and vehicles is considered one of the most cost-effective air pollution and climate change interventions, because it has climate and health benefits plus provides major cost savings," said Zhang Shigang, coordinator of the UNEP China Office.

The average per-liter cost to upgrade refineries and produce 10-mcg-per-gram sulfur fuel in China is 0.7 cents for gasoline and 1.7 cents for diesel. This is well below the price increases approved in October 2013 by the National Development and Reform Commission, according to analysis commissioned by the International Council on Clean Transportation. The analysis also found that the long-term benefits of the proposed China VI standards outweigh the costs by at least 7-to-1.

The sales volume of motor vehicles in China is expected to reach 22 million in 2013, while the International Council on Clean Transportation predicts the number of vehicles in the nation will reach almost 200 million by 2030, with more than 40 percent of those in the Beijing-Tianjin-Hebei cluster, the Yangtze Delta and the Pearl River Delta, the three most polluted areas in China.

The Air Pollution Action Plan released on September 10, 2013 by the State council made it clear that the fourth stage motor vehicle gasoline and diesel (50ppm) will be supplied nationwide respectively in 2013 and 2014. And at the end of 2015, the fifth stage motor vehicle gasoline and diesel (10ppm) will be fully supplied in Beijing, Tianjin, the Yangtze River Delta, the Pearl River Delta and other key areas; by the end of 2017, nationwide supply should be achieved.



EPA Administrator Ms. Gina McCarthy

US Environmental Protection Agency administrator Gina McCarthy spoke at the meeting and said that precisely because of the implementation of ultra-low sulfur fuel it has been possible to further implement more stringent motor vehicle and engine standards in the United States. She said that clean fuel and more stringent emission standards can also help China apply more advanced vehicle emissions control technology to further reduce emissions.

The two countries should strengthen cooperation to reduce emissions of the transport sector and jointly cope with clean air challenges. McCarthy's activities over her four-day visit included chairing a meeting of the China-U.S. Joint Committee on Environmental Cooperation, launched in 2005 to encourage cooperation between the EPA and its counterpart in China, the State Environmental Protection Administration.



McCarthy's message on low sulfur fuels was reinforced by California Air Resources Board, Executive Director, Mr. Richard Corey.

"The use of low-sulfur gasoline can cut hydrocarbons, nitrogen oxides and toxic air pollutants and mitigate the efficiency decrease of the catalytic converter caused by sulfur pollution; The use of low-sulfur diesel fuel can reduce sulfur dioxide, particulate matter and nitrogen oxides; diesel vehicles can effectively use particulate matter trap with catalytic

devices and nitrogen oxides post processors," California air Resources Board executive officer Richard Corey said," It is estimated that California has made great gains in terms of motor gasoline quality improvement, it is equivalent to removing 3.5 million vehicles off the roads, and reduce the risk of cancer caused by vehicle emissions by 40%. "

UNEP representative in China Zhang Shigang said that UNEP is very pleased to see China has announced plans to further reduce fuel sulfur content to 10ppm, which is a huge contribution to air pollution prevention and control on city, country, regional and global levels. At the same time, China's approach has had a significant impact on other developing countries worldwide.

Prior to leaving the US for her visit to Beijing, Shanghai and other Chinese locations, Environmental Protection Agency Administrator McCarthy noted that China could learn from U.S. struggles to reduce pollution as it confronts its recent high-profile incidents of poor air quality paralyzing major cities. "While I am all too well aware of the severe air quality challenges that China now faces, I see these challenges as ones where the United States can truly speak from experience in support of China's efforts to reduce air pollution," McCarthy said at an event hosted by the Center for American Progress.



China's goals "are now to get down to the similar levels which the United States and WHO indicate need to be phased down (to) but the challenge is enormous," McCarthy said.

McCarthy said a public outcry for better air pollution controls in the United States before the creation of the EPA in 1970 was an impetus for stringent air pollution measures. "Before the EPA and our landmark environmental laws in the United States, dark blankets of pollution covered our great American cities - not just Los Angeles but New York and Pittsburgh," she said in prepared remarks.

The U.S. and China represent the two largest global economies, the largest energy consumers and the largest carbon emitters, and the two countries must work together to address pollution, particularly greenhouse gases, McCarthy said. China and the U.S. need to take a lead to address climate change as the UN Framework Convention on Climate Change looks toward negotiating a global climate agreement to be finalized in 2015, McCarthy continued. "In a 2015 world, the two largest emitters of the greenhouse gases need to be at the table, and it's extremely important that China be with us and be aggressive and be supportive of establishing some goals we can all be proud of," she said.

McCarthy said the EPA has worked with China's Ministry of Environmental Protection on air quality issues for the past 15 years, and she hopes to build on that relationship to address climate change. "They have established some very ambitious goals, not only for air quality but also for climate," she said.

She noted that EPA and China have already discussed methods to reduce emissions of short-lived climate pollutants such as methane, hydrofluorocarbons and black carbon. The U.S. and China in September agreed to pursue amendments to the Montreal Protocol on Substances that Deplete the Ozone Layer to reduce the production and consumption of hydrofluorocarbons (HFCs), a short-lived but potent greenhouse gas. That pledge built on a June 8 agreement between President Barack Obama and Chinese President Xi Jinping to phase down HFC emissions.

The EPA and China also are looking at ways to reduce the allowable sulfur content of diesel engines, a significant source of black carbon. While the U.S. currently caps the amount of sulfur allowable in diesel fuel at 15 parts per million, China allows up to 10 times that amount in its diesel fuel, McCarthy said. She said the agency will discuss methods to reduce the sulfur content of fuels used by highway vehicles, heavy-duty engines and marine diesel engines.

### **U.S., China Pledge to Cooperate On Marine Emissions, Soil Pollution, Shale**

Top U.S. and Chinese environment officials meeting in Beijing reiterated their joint commitment to reducing emissions from marine vessels, soil pollution, impacts from shale gas and mercury pollution, according to a December 11<sup>th</sup> report on the website of China's Ministry of Environmental Protection. The report, an overview of the December 9<sup>th</sup> meeting between U.S. Environmental Protection Agency Administrator Gina McCarthy and China's Minister Zhou Shengxian, also called for further cooperation to reduce mercury under the Minamata Convention on Mercury.

The U.S. and China "continue to deepen cooperation and enhance" mutual trust on environmental issues, according to the report.

The U.S.-China environmental talks were the fourth held by the Joint Commission on Environmental Cooperation formed between the U.S. and China in 2005. The meetings alternate

between Washington and Beijing. McCarthy and her Chinese counterpart signed a statement on cooperation at the conclusion of their talks.

The joint meeting of the nations' top environment officials came a week after Vice President Joe Biden and senior Chinese officials pledged increased cooperation by both countries—the world's leading greenhouse gas emitters—on climate change by phasing out fossil fuels subsidies as well as the global use of hydrofluorocarbons, a highly potent greenhouse gas (see related story).

Zhou reportedly said at the December 9<sup>th</sup> meeting that China's main environmental focus for the coming year will be controlling air pollution, particularly small particulate matter (PM-2.5); protecting drinking water resources; preventing and remediating soil pollution, primarily in rural areas; reducing key pollutant emissions and discharges (sulfur dioxide and nitrogen oxide in air, and levels of chemical oxygen demand and ammonia nitrogen in wastewater); increasing environmental law enforcement; and reforming institutional mechanisms to streamline environmental protection.

### **China Tells Pilots to Improve Landing Skills to Deal With Beijing Smog**



Residents wearing face masks use their mobile phones on a pedestrian overpass on a hazy day at the Pudong financial area in Shanghai, December 6, 2013.

Chinese authorities have told pilots who fly to Beijing they must be qualified to land their aircraft in the low visibility brought about by smog, state media said recently, as the government tries to reduce flight delays due to pollution.

Beginning January 1, pilots flying from the country's 10 busiest airports into the Chinese capital must be qualified to use an instrument landing system on days when smog reduces visibility to around 400 meters (1,315 feet), the official China Daily said, citing China's civil aviation regulator. "It is part of a series of measures the administration took recently to raise the flights' on-time performance," the newspaper quoted an unnamed aviation official as saying.

Despite investing billions of dollars in new airports and advanced Western-built aircraft, China suffers a chronic problem with flight delays, partly because of the country's often wildly-fluctuating weather and partly because the military tightly controls most of China's airspace. Chinese media frequently reports fights, attacks on airport and airline workers and passengers storming aircraft in response to delays and the poor way they are handled, and the government has demanded airlines and airports address the issue. In recent years, smog has added to the problem of delays, especially in Beijing but also in other parts of the country like cosmopolitan business hub Shanghai.

"Considering the recent smog and haze has brought numerous troubles to air transport in eastern and southern regions, it seems necessary for authorities to ask pilots to improve their landing capability in low visibility," the China Daily quoted Ouyang Jie, a professor at Civil Aviation University of China, as saying.

The report added that only a handful of Chinese airports have the instrument landing systems required for aircraft to land in poor visibility.

### **Beijing to Buy New Buses to Clear City Smog**

China's capital Beijing, regularly shrouded in hazardous air pollution, plans to replace its oil-burning buses with greener models by 2017 to help clear the smog, state news agency Xinhua said. Nearly 14,000 new buses powered by electricity or natural gas will be bought with an expected investment of 10 billion Yuan (1.64 billion U.S. dollars) to replace two-thirds of Beijing's bus fleet and halve carbon emissions, Xinhua said, citing the city's environment and transportation authorities.

By 2017, 66 percent of the total 21,000 buses in the city will be electronic or clean energy buses. About 150,000 tons of fuel oil will be saved every year, and carbon emissions cut by 50 percent. The rest of the buses will be low-emission diesel vehicles.

The city plans to purchase a new type of trolley bus that will be powered either through overhead cables or onboard lithium ion batteries, said Cao Yan, operational manager of the Beijing Public Transportation Group. The trolley bus will be able to run for 8 to 10 hours offline.

### **China to Close Schools, Stop Outdoor Activities During Heavy Smog**

Chinese cities should close schools, cut working hours and stop outdoor activities during the most severe spells of air pollution, the Ministry of Environmental Protection has announced. "Every possible compulsory measure" must be taken to cut emissions during the heaviest smog, which has a serious impact on health, the ministry said, including suspending factory production and imposing traffic restrictions.

The ministry's guidelines, issued in a circular, come as China grapples with frequent choking smog in its big cities that has fuelled public anger. State media recently reported that an 8-year-old-girl who lived near a busy thoroughfare in the coastal province of Jiangsu had been diagnosed with lung cancer. The case of the girl, called the country's youngest lung cancer patient, has sparked a public outcry.

Schools and workplaces typically operate as normal in all but the most severe smog, even when it reaches hazardous levels. Primary and middle schools suspended classes last month in the northeastern city of Harbin during a smog emergency. The airport and some bus routes were also closed.

China must also toughen anti-pollution measures on industry and reduce its dependence on coal, which produces more than three quarters of electricity, the Environment Ministry said. Public security departments should also toughen checks on vehicles, including phasing out older ones, and ensure there are not too many on the roads, it said.

China said in September it would slash coal consumption and shut down polluting mills, factories and smelters, though experts have said implementing the measures would be tough.

Air pollution is expected to worsen this winter because of a chronic natural gas shortage.

### **Schools Close In Smog-Enshrouded Eastern China**

Hazardous air pollution forced schools to shut or suspend outdoor activities in at least two cities in eastern China, where residents complained of the yellow skies and foul smells that are symptomatic of the country's crippling smog crisis.

In Nanjing, the capital of Jiangsu Province, the sun was the color of "salted egg yolk" as the government raised the "red alert" for poor air quality for the first time, state-run news media reported. The city saw levels of PM2.5, or particulate matter with a diameter of 2.5 micrometers, reach a reading of 354, said Nanjing-based news portal news.longhoo.net. Levels above 300 are considered hazardous, while the World Health Organization recommends a daily level of no more than 20.

Qingdao, a coastal city in Shandong province, was also shrouded in smog as PM2.5 levels of over 300 were recorded, said Peninsula Metropolis Daily, a Qingdao newspaper.

Nanjing suspended classes in primary and secondary schools and Qingdao banned outdoor activities, said the official Xinhua news agency. Qingdao also banned the burning of leaves and rubbish and restricted the use of government vehicles, while Nanjing said it would strengthen control on industrial sources of pollutants. Residents in both cities took to China's popular Twitter-like Weibo site to describe desolate streets and the apocalyptic environment. "The sky is pale yellow and the air is full of a choking smell," one user wrote.

### **Shanghai Air Pollution Wanes after Smog Forces Cancellations**



Photo: Balloon used by Shanghai's Environmental Monitoring Center to collect air quality data from an elevation of up to 1000 meters.

Shanghai's air pollution finally fell to "light" levels after record smog prompted flight cancellations and the city warned children and elderly to stay indoors on at least seven of December's first nine days. "This is a shock," said Robert Theleen, chief executive officer of ChinaVest Ltd. and chairman of the American Chamber of Commerce in Shanghai. "There was a perception that Shanghai was doing a better job in controlling pollution than Beijing."

The city's air quality index was 130, categorized as "lightly polluted," according to the local monitoring center. A warning to stay indoors is triggered any time the index exceeds 200. The index surged to a record 482 on December 6<sup>th</sup> to the "severe" level, the highest of a six-tier rating

system, according to the China Daily newspaper. That prompted the government to order cars off the road and factories to cut production.

Baosteel Group Corp., the parent company of China's largest-listed steelmaker, is using low-sulfur coal in its Shanghai power plants in line with government efforts to reduce smog, according to spokesman Alex He. The company also suspended outdoor operations of its chemical facilities and is controlling production at its iron-ore processing operations, He said.

The smog is hurting the city's image as it seeks to attract foreign businesses and talent to its fledgling trade zone, Theleen said. City officials need to do better job with information disclosure and find out the root cause of the smog, he said.

The pollution may be coming from coal power plants and factories such as cement works in the provinces of Jiangsu, Anhui and Shandong, Greenpeace China said on its website. "Steps taken by the Shanghai government to alleviate pollution aren't enough," Huang Wei, who works on climate and energy issues for Greenpeace in Beijing, told reporters. "Smog brings a huge health risk to the public and definitely affects multinational companies' investment decisions and makes them hesitate before sending foreign employees to China."

### **China State Media Under Fire for Mentioning Benefits of Smog**

Commentaries by two of China's most influential news outlets suggesting that the country's air pollution crisis was not without a silver lining drew a withering reaction from internet users and other media. In online commentaries, state broadcaster CCTV and the widely read tabloid the Global Times, published by the Communist Party's official People's Daily, both tried to put a positive spin on China's smog problem. The Global Times said smog could be useful in military situations, as it could hinder the use of guided missiles, while CCTV listed five "unforeseen rewards" for smog, including helping Chinese people's sense of humor.

While both pieces have since been deleted from their websites, Chinese newspapers lost little time in denouncing their point of view, in an unusual case of state media criticizing other state media, showing the scale of the anger.

- "Is the smog supposed to lift if we laugh about it?" wrote the Beijing Business Today, published by the city government's official Beijing Daily. "Smog affects our breathing. We hope it does not affect our thinking."
- The Dongguan Times, from a heavily industrial city close to the border with Hong Kong, said CCTV's comments were so bizarre people did not know "whether to laugh or cry". "There's nothing funny about the health dangers of smog," it wrote.
- Even the main Xinhua news agency - which had initially picked up CCTV's commentary - weighed in, writing on one of its official microblogs that it was "totally inappropriate" to make fun of air pollution.

Users of Sina Weibo, China's answer to Twitter, also vented their outrage over the CCTV and Global Times' comments. "The smog crisis covering large parts of China has revealed the failure of the government's development strategy of only going after GDP (growth). CCTV is shameless in trying to cover up for their masters," wrote Wu Bihu, a professor at the elite Peking University.

"The Global Times thinks that pollution will cause missiles to miss their targets ... How shameful! So that's what all this smog has really been about. People had thought it was just bad pollution...", state television in the eastern province of Shandong wrote on one of its microblogs.

### **China's Government Stresses Transparency As Localities Take Actions**

Amid a continuing series of air pollution emergencies, Chinese environmental authorities are pushing more forcefully for disclosure of air quality information, and more localities are limiting vehicle use and factory production. Air quality readings rose above the 500 mark, the highest level on the air pollution index, at monitoring points in eastern China near Shanghai and the Yangtze River Delta during the first two weeks of December. A reading of 500 or more indicates severe air quality problems.

On December 15<sup>th</sup>, the State Council released a notice from the Ministry of Environmental Protection calling on environmental protection bureaus to use local government-affiliated media and other news platforms to release detailed information on air quality and to alert local governments to initiate contingency plans during air pollution emergencies. The ministry criticized some bureaus for withholding information and not responding to pollution emergencies in a timely manner, saying that had eroded public confidence in the authorities.

Some cities, such as Nanjing, the capital of Jiangsu province in eastern China, are implementing 24- to 48-hour forecasting systems to alert residents about future air pollution threats.

Minister of Environmental Protection Zhou Shengxian told environmental officials at a December 16<sup>th</sup> meeting on urbanization plans that frequent air pollution is not only "an environmental issue, but also a quality of life issue that is bound to develop into a major political issue." According to an account on the ministry's website, Zhou added that cities must accelerate implementation of air pollution prevention and controls and adjust their energy mixes, including "substantially increasing" the use of cleaner-burning coal.

Legal Daily, a newspaper under the direction of the Ministry of Justice, reported on December 16<sup>th</sup> that the ministry has drafted amendments to China's Air Pollution Prevention and Treatment Law for submission to the State Council in early 2014. It said the ministry is drafting new airborne emissions standards for the cement industry and six other unnamed sectors as well as more extensive motor vehicle pollution control policies.

Officials from the ministry and the National Development and Reform Commission said in early December that they have established a joint committee under the State Council to oversee national air pollution control planning.

Several areas have recently begun to implement air pollution plans focused on controlling emissions from vehicles and industry. For example:

- Tianjin said Dec. 16 it will use a license plate lottery and auction system to limit vehicle growth in the municipality to 1 million over the next three years. At the end of 2012 there were already 2.36 million registered vehicles in the municipality, the government said. State media reported that residents are rushing to purchase vehicles before the plan is fully implemented.
- China Environment News (CEN), an agency attached to the Ministry of Environmental Protection, reported on December 16<sup>th</sup> that 10 cities in the northeastern Shandong

province, including the capital of Jinan, have introduced limited, 30 percent production cutbacks for coal-fired power plants, iron and steel works, chemical facilities and other certain other heavy industries after air pollution index readings in those cities rose above the “hazardous” 400 level on the air pollution index, triggering an “air pollution emergency” response.

- CEN reported December 9<sup>th</sup> that 49 companies in Jinan had signed an agreement with the municipal government to shut down or reduce production during such emergencies.
- Taiyuan, capital of Shanxi province in central China, said on December 10<sup>th</sup> that it will restrict the use of vehicles by government departments and alternate daily private car use between odd and even license plate numbers during air pollution emergencies, as well as reduce production by 30 percent in heavy industry during those periods.
- Qinghuandao, a port city in Hebei province, said on December 9<sup>th</sup> it will impose similar restrictions in emergency situations. Over the past year, Hebei province has spent 13.9 billion Yuan (\$2.28 billion) on prevention and treatment programs for air pollution and closed facilities of 190 companies because of outdated production techniques, CEN reported on December 6<sup>th</sup>.
- Jiangsu and Heilongjiang provinces and the cities of Chengdu, capital of Sichuan province, and Shijiazhuang, capital of Hebei province, also have finalized and released air pollution action plans in recent weeks.
- CEN reports from December 11<sup>th</sup> indicated that Beijing's government is expected to approve air pollution control ordinances in January. These will focus on the principle of “polluter pays,” with businesses and industries with the heaviest pollution paying the highest costs.
- The state-run Xinhua news agency reported on December 10<sup>th</sup> that eight cities in Liaoning province are being fined a total of 54.2 million Yuan (\$8.9 million) by the provincial environmental protection bureau for failing to implement certain air pollution controls.

### **Light-Vehicle Sales Jump 16% in November; Annual Sales to Exceed 21 Million**

China's passenger-vehicle deliveries rose 16 percent in November as Japanese automakers extended their sales recovery for a third straight month. Wholesale deliveries of cars, MPVs and SUVs climbed to 1.7 million units, the state-backed China Association of Automobile Manufacturers reported.

Sales at Toyota Motor Corp., Nissan Motor Co. and Honda Motor Co. surged as Chinese consumers shrugged off renewed diplomatic tensions between Asia's two-largest powers. That's in contrast to last year, when Japanese automakers were hurt by consumer boycotts against Japanese products in the wake of a territorial dispute over a group of uninhabited islands in the East China Sea. “The Japanese have been introducing more new models, especially lower-priced ones, which has made them very competitive,” said Harry Chen, a Shenzhen, China-based analyst at Guotai Junan Securities Co. “That has helped their recovery momentum.”

The decades-long dispute was reignited last month after China created an air defense area covering the islands, known as Senkaku in Japan and Diaoyu in China. But the simmering dispute

did not ignite a fresh wave of boycotts, and now Honda and Toyota are headed for record sales in 2013.

One reason that Japanese sales look so strong today is that they were so weak last year. Moreover, Japanese automakers fueled their recovery with steep discounts, said John Zeng, Asian director of LMC Automotive, a market research firm. Take the Mazda6 sedan, Mazda's top-selling model in China. Last year, the car sold for 170,000 Yuan (\$27,870), but this year its price dropped below 130,000 Yuan, according to Zeng.

Over the past six months or so, Japanese brands received yet another sales lift from a wave of product launches. Honda, for example, introduced the Cider and Jade to the Chinese market.

Over the next few months, Japanese brands likely will get a lift from some SUVs that they plan to launch. Compact SUVs are in strong demand in China. In November SUV sales nationwide jumped 59 percent from a year earlier to 301,000 units, according to the China Association of Automobile Manufacturers. But SUVs alone can't guarantee sustainable sales growth for Japanese brands, now that rival automakers are launching their own new products.

For example, since last year, the U.S. automaker Ford has introduced four SUVs: the Edge, Explorer, Kuga and EcoSport. By 2015, Ford plans to introduce yet another SUV plus the Mustang.

To capture more market share in China, virtually all global automakers are aggressively expanding. General Motors, for example, is building two plants in China with a combined capacity of 600,000 units.

But that is something that Japanese automakers are wary of doing. Anti-Japanese sentiment in China finally has subsided. But relations between China and Japan remain strained, and neither country has shown any inclination to back down from their territorial dispute. Fearing that tense relations could trigger another boycott, Japanese automakers are reluctant to build new plants in China. Such fears will hold back these companies at a time when their competitors are forging ahead.

Industrywide, total sales of vehicles -- including buses and trucks -- reached 19.9 million units this year through November. China's total vehicle sales should exceed 21 million units this year, according to Dong Yang, secretary general of the auto association.

Ford Motor Co.'s Focus was the best-selling sedan last month, with Great Wall Motor Co.'s Haval line remaining the nation's top-selling SUV.

General Motors, the largest foreign automaker in China last year, reported a 13 percent gain in November sales and the company has said it will deliver 3 million vehicles in China this year by the middle of December.

But Volkswagen AG is poised to overtake General Motors as the top-selling automaker in China after posting a 15 percent November gain. VW delivered 310,000 vehicles in the world's largest auto market last month, outpacing GM's sales of 294,500 units. In the first 11 months, the German automaker has sold 2.96 million cars and trucks in China, while GM sold 2.89 million units.

While VW now sits atop the China market, not all VW brands fared equally well. The company's luxury brands -- Audi and Porsche -- boosted sales, while value brand Skoda continued to struggle.



Audi sales in the first 11 months increased to 443,700 units, while Porsche sold 34,113 units, up 17 percent. However, Skoda deliveries declined nearly 4 percent to 217,400 units.

In the first 11 months, Volkswagen-brand passenger car sales in China increased 18 percent to 2.3 million units. The automaker considers China to be the centerpiece of its campaign to be the world's top automaker by 2018. Over the next five years, VW will spend 18.2 billion euros (149 billion Yuan) on new assembly plants and models in China. During that time, the company expects to increase Chinese production by 60 percent.

### **WTO Panel Affirms Ruling Against Chinese Export Restrictions on Rare Earths**

A World Trade Organization dispute panel has affirmed that China violated its WTO membership terms by imposing export restrictions on rare earths, which are important to a multitude of industrial and high-tech products including wind turbines, hybrid car batteries and energy-efficient lighting.<sup>11</sup> The three-member WTO panel issued a final ruling on December 13<sup>th</sup>, backing the complaint filed by the U.S., the European Union and Japan against the Chinese restrictions, which take the form of export quotas, export duties, various restrictions on the right to export and administrative requirements limiting exports.

The final ruling was issued to the parties on a confidential basis and will only be made public once it has been translated into the WTO's three official languages, a process which is expected to take an additional three months to complete. China will then have 60 days to decide whether to appeal the panel's findings.

The final ruling maintains the conclusions of the panel in its preliminary ruling issued to the parties on October 23<sup>rd</sup> — that the export restrictions violate Paragraph 11.3 of China's 2001 WTO accession protocol requiring the country to eliminate all taxes and charges applied to exports unless specifically provided for in Annex 6 of the protocol. Annex 6 allows China to impose export duties on 84 tariff lines up to a specified limit; none of the rare earths or metals at issue in the dispute are on the Annex 6 list.

The panel also rejected China's claims that the export restrictions could nevertheless be justified as an exception to WTO rules under Article XX(b) and (g) of the WTO's General Agreement on Tariffs and Trade because they were needed to protect human health or conserve exhaustible natural resources. The complainants contended that Paragraph 11.3 of the 2001 accession protocol precludes the possibility of China invoking an Article XX defense. That conclusion was not unanimous, with one panel members agreeing with China that the export restrictions could in principle be imposed as an Article XX exception but adding that China had not demonstrated the duties were justified under that provision.

China is the world's leading producer of rare earths, a set of 17 chemical elements in the periodic table that include 15 lanthanides (lanthanum, cerium, praseodymium, neodymium, promethium, samarium, europium, gadolinium, terbium, dysprosium, holmium, erbium, thulium, ytterbium, lutetium), as well as scandium and yttrium.

In addition to the rare earths, the three complainants also successfully challenged Chinese export restrictions on the metals tungsten and molybdenum.

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<sup>11</sup> Rare earths are also used in advanced electronics, flat-panel displays, mobile phones, disk drives, steel, automobiles, petroleum and chemicals.

## **China Sets HCFC Production Quotas for 2014 to Comply With Montreal Protocol**

China has assigned hydrochlorofluorocarbon (HCFC) production quotas to 40 businesses for 2014 and released details on 2013 quotas. China's quota system is designed to limit production and use of HCFCs, commonly used in refrigeration systems, in compliance with the Montreal Protocol on Substances that Deplete the Ozone Layer. The quotas determine how much each company is allowed to produce.

Quotas for 2014 were posted on November 25<sup>th</sup> on the website of the Ozone Action in China Multilateral Fund Project Office, which is under the supervision of the Ministry of Environmental Protection's Foreign Affairs Department. Zhejiang Sanmei Chemical Industry Co. Ltd., Shandong Huan New Material Co. Ltd. and Dongyue Group Ltd. were among companies receiving the highest quotas.

On December 5<sup>th</sup>, the Ministry of Environment Protection (MEP) posted an announcement about 2013 quotas for HCFCs, stating that 64,460 metric tons of HCFC 22 had been assigned to 28 companies producing small unit air-conditioners for rooms and that 9,995 metric tons of the substance had been assigned to 14 companies for production of air conditioners for industrial and commercial use.

A total of 7,126 metric tons of HCFC 141b was assigned to 22 companies involved in polyurethane production, another 2,967 metric tons of HCFC 22 and 2,255 metric tons of HCFC 142b were assigned to 10 polyvinyl benzene production companies, and 149 metric tons of HCFC 141b were assigned to a pharmaceutical device company.

In a statement, the ministry said it is revising its 2010 Ozone Depleting Substances Import and Export Management Measures because they are outdated. The new measures will include 27 items detailing application processes and supervision responsibilities of government departments.

Separately, China and the U.S. are cooperating on an effort to phase out the global use of hydrofluorocarbons (HFCs), a highly potent greenhouse gas originally developed as an alternative to ozone-depleting chemicals such as HCFCs. HFCs have a global warming potential of between 140 and 11,700, meaning they are more than a hundred times and as much as tens of thousands of times more effective in warming the planet than the most prevalent greenhouse gas, carbon dioxide.

## **China Says Poorly Prepared To Fight Impact of Climate Change**

China is poorly prepared to tackle the impact of climate change that presents a serious threat to the country, thanks to a lack of planning and public awareness, the government said. The world's most populous country already faces challenges from weather extremes, with 2,000 people dying on average each year since the 1990s in natural disasters that are set to get worse, China's powerful economic planning agency said.

"Our country is a developing nation with a large population, complex climate conditions and a weak environment (situation)," the National Development and Reform Commission said in a report. "Climate change is already a serious threat to food, water, ecological and energy security, and to people's lives and property," it added. "The mission to deal with climate change is very arduous, but knowledge in society and ability to do this are weak across the board."

China is seeing more droughts in its northern region, with typhoons arriving earlier, wetlands drying up and sea levels rising, said the document, published in coordination with several ministries, including the Agriculture Ministry. "In the future the rising trend of temperatures will become even more obvious, there will be even more unfavorable impacts (from climate change), and if effective measures are not taken the losses from disasters caused by extreme weather will be even more serious," the agency added.

Government steps to mitigate climate change range from building more reservoirs, providing better protection to forests and wetlands to improving weather warning systems, but the overall picture is not optimistic, the planner said. "Although our work at dealing with climate change has achieved some successes, basic abilities have yet to be raised up, and there are many weak links in our work," it added.

China was unable to protect basic infrastructure, such as power and water supplies, from extreme weather events, and flood prevention efforts need to be spruced up, it said.

A coal-dependent manufacturing base has made China the world's biggest contributor to climate change. In recent months, officials have outlined new policies to fight the problem, on top of steep renewable energy targets in the current five-year plan. But China's pollution is expected to continue growing well into the next decade, albeit at a slower pace, as it has little choice but to rely on fossil fuels to develop its western interior.

### **China's Public Security Ministry to Help With Crackdown on Environmental Crimes**

China is hoping to strengthen its enforcement of environmental laws through closer cooperation and communication between its ministries of Public Security and Environmental Protection, the latter body said in a notice on its website. The December 3<sup>rd</sup> notice said the environment ministry will be responsible for overall supervision of polluting companies, including handling documentation on their emissions, monitoring emissions at their facilities and imposing administrative punishments such as fines or restrictions on their activities.

The Ministry of Public Security, meanwhile, will be responsible for punishments involving illegal emissions, particularly of hazardous chemicals, and cases of tampering with or damaging environmental monitoring equipment. It will investigate possible criminal violations and help the environment ministry investigate potential environmental crimes. The Ministry of Public Security said 247 criminal cases involving environmental crimes were filed in the first half of 2013 across China.

Zou Shouming, the Environment ministry's secretary for environmental monitoring, said at a news conference about the announcement that "due to the heavy task of air pollution control" in Hebei province, a special police team has been set up to assist in environmental cases there. Zou said Shandong, Hebei, Zhejiang, Jiangsu and several other provinces will be among the first to establish pilot programs to link environmental protection and public security enforcement activities.

In cases where enforcement activities might lead to public protests or other disturbances, the two ministries are required to report to local government and Communist Party committees for instructions on how to proceed.

The notice said the two ministries will set up regular communication channels, particularly during environmental emergencies and other critical events, and appoint communication liaisons to

coordinate activities. Special funding will be made available for further coordination between the two ministries, according to the statement.

Separately, authorities in the central Chinese province of Hubei including the provincial Supreme Court, People's Procuratorate, Public Security Bureau and Environmental Protection Bureau have issued a plan for jointly tackling environmental crimes, according to a December 2<sup>nd</sup> report from China Environment News, a news agency under the direction of the Ministry of Environmental Protection. The plan calls for coordination and information sharing among the bodies, as well as public disclosure of environmental crimes through the websites of the provincial government agencies.

### **S. Korea, China to Discuss Ways to Cut Air Pollution**

Senior officials from South Korea and China will hold talks to discuss ways to help reduce hazardous air pollution in northern China, as Beijing's smog is increasingly affecting Seoul. The one-day talks in Beijing will bring together dozens of senior officials from the two nations' environment ministries and meteorological agencies, a South Korean diplomat said.

"During the talks, South Korea will provide its lessons in tackling air pollution to China and the two sides are expected to exchange a variety of cooperative measures to jointly improve air quality," said the diplomat.

The levels of particulate matter in South Korea have been jumping during the winter months, as westerly winds carry the smog from China to the Korean Peninsula.

### **China's Smog Threatens Health of Global Coal Projects**

A choking smog across much of northern China threatens not just the health of local residents, but also of major coal projects globally that are still on the drawing board. China's plans to tackle pollution largely target coal-fired power, which will hit already slowing demand in the world's top importer of the fuel.

With China's coal demand the primary driver for a slew of mine investments over the past decade, this trend could derail a list of capital intensive coal projects from Australia to Indonesia and Mozambique.

Even without the environmental drive, new railways from mines to ports, falling investment in coal-fired generation and slowing power demand growth could see China's miners export some of their surplus output at competitive prices, hitting regional miners and the viability of new projects. This is a major shift for a country that built an average of two coal-fired power plants every week in the last decade, went from net exporter in 2009 to the world's top importer just two years later, and burns nearly as much coal as the rest of the world combined.

China's coal imports grew by 17 percent in the first 10 months of the year, down by nearly half from the 30 percent growth in 2012. With weaker demand and high domestic output, inventories have been stuck at record high levels of 300 million metric tons most of this year.

China's massive jump in coal use - to 3.8 billion metric tons in 2012 from 2.5 billion metric tons in 2006 - drove prices of benchmark Asian thermal coal to average \$121 a metric ton in 2011, from less than \$50 five years earlier. But a raft of mine expansions during the boom years and weaker

demand caused by the global economic slowdown pushed prices to a 3-year low near \$80 a metric ton in October 2012, and they have stayed below \$100 since.

Goldman Sachs reportedly expects seaborne coal trade to grow at just 1 percent until 2017, compared with 7 percent from 2007-12.

Miners bullish on demand are planning projects in areas that need significant infrastructure investment, such as the Galilee basin in Australia and the Sumatra region in Indonesia, but need high prices for the projects to make sense.

India's GVK Power & Infrastructure and Adani Enterprises are amongst those spending billions of dollars on new mines in the remote Galilee Basin. State coal miner PT Bukit Asam's \$2 billion coal railway project in Indonesia's South Sumatra is in doubt after India's Adani Group pulled out. Sumatra holds half of the country's resources but accounts for just 4 percent of output due to infrastructure constraints.

In Mozambique massive spending is needed on railways and ports to allow companies like Rio Tinto Ltd and Vale SA to make the most of potential reserves.

"The prospect of weaker demand growth and prices at near marginal production costs suggest that most thermal coal growth projects will struggle to earn a positive return for their owners," Goldman Sachs said in a report.

In Australia, about 40 out of 71 thermal coal mines surveyed by consultancy Wood Mackenzie had a cash cost of above \$87 a metric ton, while many of the proposed projects require a coal price of \$120 a metric ton to be viable, according to a report by Australia's Centre of Policy Development. They could soon find themselves competing with Chinese coal, which is set to become more competitive as production costs fall. China is mulling proposals to scrap a 10-percent coal export tariff, a move which could easily see shipments jump four-fold to the annual quota of 38 million metric tons as Chinese coal becomes more competitive. Plans by the railway ministry to double the volume of coal carried on dedicated railroads to 2.4 billion metric tons by 2015 will cut production costs, as will an ongoing mine consolidation. Railway tariffs cost about 0.15 Yuan per metric ton for each kilometer, less than half the cost of around 0.35 Yuan by truck, according to data from the China Coal Transport and Distribution Association. More coal moving by rail will cut China's average production cost for thermal coal in the next 2-3 years by \$10-\$15 a metric ton to \$80-90, including value-added tax, according to brokerage CLSA.

Power demand growth has fallen even further than economic growth as China has cut its energy use to about 0.7 times GDP growth, according to calculations based on data from the statistics bureau. That compares with an average multiplier of 1.1 times from 2005-2012

A surge in hydropower, nuclear and gas power has cut coal's share in power generation to 73 percent this year, from 78 percent in 2007, and this is set to move even lower. Hydropower capacity is targeted to grow about 6 percent a year to reach 290 gigawatts by 2015, nuclear capacity to quadruple to 58 gigawatts by 2020 and gas-fired capacity to double to 56 gigawatts by 2015. That compares with an expected 4 percent annual growth in thermal power capacity, half that seen between 2005 and 2011, said Liu Xiangdong, director of planning statistics of the China Electricity Council.

### **To Tackle Pollution, China to Drop Pursuit of Growth at All Costs**

China will steer local governments away from the pursuit of economic growth at all costs and beef up their powers to punish polluters as part of a campaign to reverse the damage done by three decades of unchecked expansion. In wide-ranging economic and social reforms recently unveiled, the ruling Communist Party said it would put more emphasis on environmental protection when assessing officials, and would also hold local authorities directly responsible for pollution.

The document, which also pledged to relax its "one-child policy" and further free up its markets, said China would draw an "ecological protection red line" that would limit the economic development of environmentally vulnerable regions.

Three decades of industrialization and double-digit growth in China have left the country badly polluted. With public anger mounting over a series of scandals involving hazardous smog, contaminated soil and toxic water supplies, China has identified the environment as one of the biggest potential sources of instability. But despite a pledge to create a "beautiful China" over the next decade, China continues to struggle to bring polluting state-owned industrial enterprises and growth-obsessed local governments to heel.

The new policy document said China would "correct the bias towards assessing (officials) on the speed of economic growth and increase the weight placed on other indicators such as resource use, environmental damage, ecological benefits, industrial overcapacity, scientific innovation, work safety and newly-added debt."

China already assesses local officials on the way they handle the environment, but with the economy still considered the priority, local authorities stress their green credentials by building ostentatious national parks, wetlands or reforestation projects rather than address the cause of pollution and risk revenues and jobs.

"Before, they were just using environmental protection as another way of generating economic growth and even if something causes a great deal of immediate environmental damage, they would still consider the short-term economic benefits," said Zhou Lei at Nanjing University, who studies the impact of industry on the environment.

The Communist Party document also pledged to improve the way environmental rules are enforced by establishing a more "unified" central government authority and by eliminating administrative overlaps. Experts expect China to strengthen the powers of the environmental ministry as part of a wider government department reshuffle likely to take place during the annual session of parliament in March next year.

Officials, including vice-environment minister Pan Yue, have complained that the current regime lacks teeth, partly because many crucial environmental responsibilities are dispersed across a wide range of departments.

Next year's reshuffle could see the environment ministry taking on responsibilities currently held by the State Forestry Commission, the Ministry of Water Resources as well as the powerful planning super ministry, the National Development and Reform Commission, none of which consider environmental protection a priority.

The pledges made in the document will also be bolstered by amendments to the country's environmental protection laws, which are expected to be published soon and will give environmental agencies a range of new powers to fine and punish serial violators, as well as improve the way Beijing monitors pollution across the country. But Zhou of Nanjing University

said the new rules are unlikely to go far enough. "In my opinion, it is typical Chinese lip service and should not be treated seriously," he said.

### **China, Norway May Team Up In Search for Arctic Oil**

Norway is deciding whether to team up with China to explore for oil in Iceland, Icelandic authorities said, setting up a rare cooperation for the two since a diplomatic row over the award of the 2010 Nobel Peace Prize to Chinese dissident Liu Xiaobo. Norway has the right to join an exploration license with Chinese oil firm CNOOC to look for oil in the waters between Iceland and Norway's Jan Mayen, a tiny speck of land in the Arctic.

Communications between Beijing and Oslo have been mostly cool since the 2010 Peace Prize and collaboration in Iceland may be a signal that relations are on the mend.

"We expect an answer from the Norwegian authorities in the last week of November," said Gudni Johannesson, director-general of Iceland's National Energy Authority, emphasizing that there had been no diplomatic tensions over the issue.

Norway's Conservative-led government took office last month and China has signaled that it was up to Norway to repair the relationship, which has damaged business ties and prevented Statoil from exploring for shale gas in China.

Iceland awarded its first two licenses in January. In June it gave CNOOC and Icelandic firm Eykon Energy a further license as it seeks boost its fragile economy. At the time of the announcement, it was the first time a Chinese oil firm was licensed to look for oil in the Arctic.

Under a 1981 treaty, Norway has a right to take a 25 percent stake in the licenses. It did so with the first two licenses Reykjavik awarded in January, to London-listed Faroe Petroleum and Canada's Ithaca Energy together with local Icelandic partners.

China is keen to find natural resources and the Arctic could hold some 90 billion barrels of oil equivalent according to the U.S. Geological Survey. In April it signed a free trade deal with Iceland, abolishing tariffs between the two.

Iceland, still recovering from the 2008 financial crisis that brought the country to its knees, is keen to develop its natural resources to help spur its economy. There are no figures for how much oil and gas the area where the licenses lie could hold. But the area off Norway's Jan Mayen Island, geologically similar, could hold 566 million barrels of oil equivalent, according to a February survey by the Norwegian Petroleum Directorate. That is the equivalent of a sizeable North Sea field.

### **Beijing Slashes Car Sales Quota in Anti-Pollution Drive**



Lines of cars are pictured during a rush hour traffic jam on Guomao Bridge in Beijing July 11, 2013.

Photo: Jason Lee

China's capital, Beijing, infamous for its thick smog and heavy traffic, will slash the city's new car sales quotas by almost 40 percent next year, as it looks to curb vehicle emissions and hazardous levels of pollution, the city government website said.

The change in policy gives greater support for new, cleaner cars and could strengthen foreign carmakers' determination to accelerate growth in China's less crowded lower-tier cities.

Over the next four years, Beijing will issue 150,000 new license plates annually, down from 240,000 each year now, according to the city government's website. Car buyers must put on plates before they are allowed to drive on Chinese roads.

That means Beijing's new passenger vehicles sales during the 2014-2017 period will be capped at 600,000 units, fewer than the city's vehicle sales in 2010 alone.

In addition, the government will allot a higher proportion of license plates every year to buyers of new-energy vehicles that need lower amounts of gasoline or use alternative energy. This could benefit electric automakers such as BYD Co Ltd. The number of plates for such vehicles will triple from 20,000 in 2014, to 60,000 in 2017, accounting for 40 percent of that year's total plate quota.

New car sales are currently restricted in four Chinese cities - Beijing, Shanghai, Guangzhou and Guiyang - where car buyers bid for license plates through auctions and lotteries.

China plans to restrict vehicle sales in eight more cities, the China Association of Automobile Manufacturers said in July, a policy trend that has already led carmakers such as General Motors Co and Volkswagen AG to put more resources into China's smaller, less-crowded lower-tier cities.

### **Chinese Automakers Fight Proposal to Ease JV Ownership Rules**

China's auto lobby has fiercely opposed a possible move by Beijing to ease restrictions on foreign ownership in the car industry, saying that the move would seriously weaken the position of domestic carmakers.

Dong Yang, secretary general of the China Association of Automobile Manufacturers (CAAM), said that if foreign ownership rules were relaxed, Chinese carmakers would lose control of joint ventures they now own and run together with global automakers. "Foreign ownership being capped at 50 percent is the red line we must not cross because we need to protect our Chinese brands," Dong said in a statement posted on the CAAM Web site. "From another perspective,



current restrictions have not dampened global carmakers' enthusiasm whatsoever to invest in China, so why should we be more open?"

China has required global automakers such as General Motors, Ford Motor Co., Volkswagen Group and Toyota Motor Corp. to form joint ventures in order to produce cars in the country, hoping that Chinese carmakers can absorb foreign technology and management expertise to become more competitive.

The Ministry of Commerce told a media briefing in Beijing last month that the government would likely relax foreign investment restrictions soon in areas including auto manufacturing.

In addition to the 50 percent ownership cap, the current policy calls for foreign automakers to set up a jointly run technical center in China and to transfer certain technology to their local partners.

CAAM's opposition comes in the wake of indications by several Chinese policymakers that they are considering relaxing foreign investment rules in China's automobile industry. For example, at an automotive conference in Wuhan in October, Chen Lin, the Commerce Ministry official who oversees international automotive investment policy, acknowledged that unlike China, automakers investing in most countries around the world are not required to form a joint venture with a local partner to own and operate any assembly plants in their markets.

In his statement, CAAM's Dong urged Chinese policymakers to think twice before making such decisions, calling on the government to protect local brands. "The government shouldn't rush to make decisions that would have a huge impact on the industry," and needs to study the issue and solicit opinions from various parties as much as possible.

Foreign brand dominate Chinese roads, with home-grown carmakers capturing only a 30 percent share of the market collectively.

#### **49. Hong Kong Finds Switch to Cleaner Fuels Has Flaws**

All but one of Hong Kong's more than 18,000 taxis now burn liquefied petroleum gas, but one smog-causing pollutant soars if those vehicles' catalytic converters are not regularly replaced. Concentrations of nitrogen dioxide, one of the most important contributors to smog, surged by a fifth in Hong Kong's air from 2008 to 2012, and a team of local and international scientists have traced the cause to LPG-fueled vehicles, Hong Kong environmental regulators said at a news conference.

The problem lies in the taxis' and minibuses' catalytic converters, said Christine Loh, the undersecretary for the environment. Unless replaced every 18 months for cars and light buses that are driven nearly around the clock, the catalytic converters become fouled, and the vehicles begin emitting extremely high levels of pollution. Although natural-gas-powered vehicles have not been deployed on a large scale in Hong Kong, they would pose the same problems, she added.

As a result, the Hong Kong government in the coming months will pay for the free replacement of catalytic converters on the city's entire privately owned fleet of roughly 18,000 taxis and several thousand minibuses, Ms. Loh said. Pang Sik-wing, the city's principal environmental protection officer for air sciences, said that the replacement effort would cost about 10,000 Hong Kong dollars, or \$1,290 per vehicle.

After the first free replacement, taxi and minibus owners will be responsible for replacing catalytic converters every year and a half at their own expense. Hong Kong will deploy five mobile sensor systems next year to measure the pollution from passing vehicles and send automatic notices to the registered owners of any vehicle surpassing emissions standards, requiring them to take in their vehicles for repairs or risk losing their vehicle licenses. "We will strictly enforce the emissions standard," Mr. Pang said at a news conference with Ms. Loh.

Larger buses in Hong Kong continue to use diesel. Franchised bus operators have long resisted switching, arguing that only diesel engines can push buses up Hong Kong's steep hills while still providing enough power for the robust air-conditioning systems needed to ward off the sweltering heat during late spring, summer and early autumn.

The Hong Kong government is preparing to submit a bill to the legislature that would set deadlines for the retirement of all older diesel-powered vehicles that do not meet modern emissions standards and whose compliance has been grandfathered until now, Ms. Loh said. The bill will set "death dates for each of these categories — this is not a voluntary scheme, this is a mandatory scheme."

#### **50. Hong Kong to Measure Air Quality Impacts on Health Amid Growing Pollution Concerns**

On December 30<sup>th</sup>, Hong Kong introduced an air quality health index (AQHI) pegged to pollution-induced hospital admission risks amid increasing concerns about smoggy skies. Readings on the index will be calculated based on health risks from inhaling concentrations of ozone, nitrogen dioxide, sulfur dioxide and particulate matter, the government said in a statement on December 6<sup>th</sup>.

Chief Executive Leung Chun-ying has made cleaning up the city's skies a priority with air quality in Hong Kong worsening since 2007. Outdoor pollution can cause lung cancer, the International Agency for Research on Cancer, a World Health Organization agency, said in October.

"It's a much tightened standard," Andrew Lai, deputy director of environment protection, told reporters. "Under the new index, we are not only reflecting the concentration levels of the key air pollutants but also the health risks associated with those pollutants." The higher standards, which spell out the health risks more clearly, mark the first time the former British colony has changed the way it measures air quality since 1987. They were adopted after a review by public health and air science experts from local universities, and reference guidelines from the Geneva-based WHO, Lai said. Under the new system, there may be more days with pollution classified as "high" or "very high," he said.

#### **51. High Diesel Engine Demand, Exports Drive Fiat into Profits in India**

Italian car maker Fiat may not have had a great presence in the car market recently, but its joint venture with Tata Motors has quietly broken into profits for the first time since its establishment thanks to the voracious appetite for diesel engines from Maruti Suzuki, export of engine components to China and better cost efficiencies.

After the organizational restructuring in FY-12, wherein Fiat separated the manufacturing company from the marketing company and wrote off losses of about Rs 300 crore in Fiat India, the company posted a profit of Rs 269 crore in the six months ending March of 2013.

Fiat's exposure in the engine business is expected to rise further as its breadwinner engine business and the impending 7-9 new products planned by both Tata Motors which include Falcon 4 -code name for new small car and Falcon 5- a sub-four meter sedan which are in the works along with the upcoming new vehicles from the Fiat-Chrysler's range are expected to grow its revenues in the coming years.

Fiat-Chrysler's plans include the launch of a New Linea, as well as new launches such as Abarth, Grand Cherokee, Punto Cross and 2-3 new utility vehicles which are proposed to be manufactured and in some cases assembled at the Ranjangaon plant. For this purpose, the Fiat-Tata joint venture infused additional capital of Rs 650 crore in June of 2013.

During the October 2012 to March of 2013 period, the average engine production rose by over 20-30% compared to FY-12. Fiat India produced 80,736 engines in six months, with an average of 13,000 units a month. The company supplied over 100,000 engines from its Ranjangaon plant to Maruti Suzuki over the last 12-18 months.

The company's exports increased three-fold in the second half of FY-13 compared to second half of 2011-12 led by exports to GAC-Fiat's China plant for 100% of its primary engine components such as cylinder block, lower cylinder head and upper cylinder head.

A judicious utilization of plant resources and rationalization of working days and shift timings yielded up to 30% production efficiency and some savings in costs and improvement in working capital management despite uncertain market conditions. When contacted Tata Motors spokesperson confirmed to the press that the JV has turned profitable, largely helped by the restructuring arrangement, increased product volumes and efforts towards cost management.

In order to strengthen the JV, Fiat and Tata have infused about Rs 1,500 crore over a span of two years. A sum of Rs 850 crore was capitalized into the JV through a fresh issue of equity shares in FY-12 (September of 2011) and there was an additional infusion of Rs 650 crore in June of 2013.

An analyst said while the reduced engine supply to Maruti Suzuki in FY-14 due to reduced demand for diesel cars may impede growth, it may however be compensated by the expected higher volumes from Fiat with its expanded dealer network and increasing product portfolio.

## **52. Indian Capital Blanketed In Thick Smog, Transport Disrupted**



People cross railway tracks on a foggy winter morning in New Delhi December 18, 2013.

Photo: Anindito Mukherjee

Residents of the Indian capital woke recently to a third day of thick gray smog in one of the worst episodes this year, which disrupted dozens of flights and train services and caused a rash of health complaints.

New Delhi is among several Asian cities that are suffering from toxic levels of pollution fuelled by

industrial growth and a surge in the numbers of vehicles crowding their roads.

The cloak of fog draping much of north India forced dozens of flights to be diverted or canceled, disrupted train schedules and led to a doubling in the number of medical emergencies caused by breathing difficulty, officials said.

Runway visibility has been dropping to as low as 50 m. (164 ft) in Delhi. "Both departures and arrivals were stalled," said airport spokesman Kapil Sabarwal, as planes hovered in holding patterns, waiting for conditions to clear.

Two passenger trains were canceled on one day, while 60 trains were running late and 25 had been rescheduled on the third straight day of disruptions, said railways spokesman Neeraj Sharma.

The fine particles suspended in the fog ranged as much as seven times beyond the concentration that India considers safe, to reach a level the United States Environmental Protection Agency calls "hazardous". At that point, the agency urges that all outdoor physical activity be avoided and that victims of heart or respiratory ailments stay indoors, along with children and the elderly.

The fog mingled with high pollution was an extreme event "when the air quality goes from very poor to dangerous," said Gufran Beig, a scientist at the Indian Institute of Tropical Meteorology. Calm wind conditions and a smaller gap between extreme temperatures helped trap pollutants in the air, Beig said. The frequency and duration of such events have been rising every year since government records started in 2010, he added.

The only time this year that Delhi has choked in such severe air pollution was during traditional fireworks celebrations of Diwali, the Hindu festival of lights, in November, which coincided with a foggy cold snap.

The number of patients seeking treatment for respiratory and cardiac diseases has risen by about a quarter since the fog descended, said Dr. Randeep Guleria, head of the pulmonary department at the All-India Institute of Medical Sciences, a leading hospital in the city.

Particle pollution is linked to many health problems, ranging from breathing difficulties to heart attacks, strokes and early death.

### **53. Indian Environmental Activists up the Ante as Government Struggles to Enforce Rules**

When 12 village councils in the central Indian state of Odisha rejected Vedanta Resources Plc's proposal to mine bauxite for a \$7.9 billion aluminum complex in August, the case highlighted the conflicting pulls and pressures facing the country as it transitions from a poor to a middle-income economy. On the one hand lay the prospect of a multibillion-dollar investment, particularly welcome during a year when the economy is forecasted to grow by 4.9 percent, its most sluggish pace in a decade. On the other hand were the environmental, livelihood and cultural concerns of a tribal population largely isolated from the global economy.

But on closer inspection, the case revealed another disturbing aspect—the frequent inefficacy of India's environmental governance system. Local activists and nongovernmental organizations had for years alleged a range of violations by the company in building its aluminum complex. Only after a sustained campaign, which included bringing tribal members to the national capital of New Delhi to tell reporters about their opposition to the project, did the federal government set up a committee to examine the charges.

The ensuing report, released in 2010, said Vedanta was illegally occupying forest land and had violated a range of laws, including the Environment Protection Act, in “active collusion with the state officials.” The Supreme Court in April 2013 ordered the state government to hold public hearings to seek people's opinion, where Vedanta's plans were extensively criticized.

The August decision by the 12 village councils was final.

Vedanta is not the only company that has had to change or curtail its plans due to environmental compliance issues raised by civil society groups. For example, environmental concerns and compliance issues have held up plans by the South Korean company Posco for a steel plant in the coastal state of Odisha—which, at roughly \$12 billion, would be the largest single foreign investment in India—for eight years. Opposition by local residents has made it difficult to acquire land, and the government has gone back and forth between issuing environmental permits and withdrawing them.

In another example, after flash floods in the Himalayan state of Uttarakhand in June, a public interest lawsuit in the Supreme Court resulted in a ruling halting approvals of any new hydropower projects in the state. Environmental groups have warned that such projects are disturbing the region's ecology and destabilizing its geology.

As Indian officials struggle to create appropriate institutions and build their capacity to enforce environmental laws necessitated by enhanced and varied economic activity, environmentalists are becoming more strident, contributing to the evolution of environmental policy and legislation, monitoring for violations of those measures and partnering with businesses to create industry standards and codes of conduct. The Ministry of Environment and Forests, like all ministries, is required to keep all proceedings in the public domain, including on its website. In addition, mobile phones and the Internet have enabled greater dissemination of information, even as a gradual deepening of democracy takes place, thanks in part to legislative changes that have enabled thus-far marginalized groups such as tribal members to claim their rights.

Armed with information and better tools for organizing, environmentalists have in recent years intervened in a range of scenarios:

- when policies, regulations or laws have been unclear and policy makers undecided on the scientific evidence, as in the case of the harms and benefits of small hydropower projects;
- when corruption or lack of enforcement has led to disregard of laws and regulations, as in the case of many well-documented mining projects;
- when laws and policies have been applied patchily, as in the case of various waste management rules; or
- when local residents' concerns are disregarded, they are paid inadequate compensation or there is insufficient rehabilitation, as is the case with many land-acquisition projects.

#### **54. India's Negotiator Says Climate Treaty Talks 'Partial Success'**

After more than 35 hours of continuous discussions, Ravi Shankar Prasad, one of India's lead negotiators, described the United Nations climate change conference as "a partial success" for keeping the pathway open for a global climate treaty to be finalized in 2015. Mr. Prasad said that after being on the verge of a breakdown, the talks delivered a mechanism for developed countries to give money to poor nations for climate-related "loss and damage" and created an outline for a system under which countries could make "contributions" to reduce greenhouse gas emissions after 2020, when the 1997 Kyoto Protocol, the first treaty on climate change, will end.

"Loss and damage is something African countries have been asking for 15 to 20 years. It was very close to their heart and so were keen on it," Mr. Prasad told India Ink, as delegates of several countries rushed out of the National Stadium in Warsaw to catch their flights after the talks had been extended an entire day.

Previously, the failure to reach agreement over loss and damage had led to a walkout by the bloc of developing countries called G77 & China, which also includes India. For itself, India sees any future money for losses and damages to be utilized for building sophisticated risk resilience mechanisms that warn against natural disasters.

But many environmental activists saw the 2013 talks as a bust since no specified amount or timeline has been set for rich countries to actually give the money for losses and damages, and neither is there a specific plan to capitalize the \$100 billion Green Climate Fund, which will help developing nations adapt to climate change.

As old arguments dragged on, a large group of activists handed in their badges and walked out of the conference before it ended to express their anger over the lack of progress.

Even the issue of global emissions was stalled until the last hours of the conference, when delegates of 189 countries agreed to an amendment proposed by India and China to change the word "commitments" to "contributions" in paragraph 2b of the text, which forms the basis of the new climate treaty. The running joke in the negotiating halls was "2b or not to 2b."

Since India is still faced with the massive challenge of increasing development for poverty eradication, Mr. Prasad explained that only developed countries would have legally binding "commitments" as they were responsible for historical emissions. The Indian delegate said that it was not for developing countries to "fill the gap" left by the failure of rich countries to take on 40

percent reduction targets over 1990 levels, targets that had been recommended by the United Nations' Intergovernmental Panel on Climate Change, or I.P.C.C.

Presently, the European Union's reduction figure in the Kyoto Protocol's second commitment period, which runs until the new treaty kicks in 2020, is only 20 percent from 1990 levels. The United States, which never ratified the Kyoto Protocol, has pledged a 17 percent reduction from 2005 levels.

Unlike the Kyoto Protocol, which put the burden of cutting emissions on the shoulders of rich countries, the 2015 treaty will be "applicable to all," as was agreed to in the Durban Platform decided at the 2011 talks in South Africa. But dividing responsibilities remains fraught with contention. "Clearly, there is a difference from the past, but what exactly that is not yet decided," said David Waskow, director of the International Climate Change Initiative in Washington, D.C.

India, for instance, would have preferred "actions" in the text to "contributions" to refer to its voluntary domestic actions to reduce emissions. The country is also not willing to sign up for international obligations until it gets the technology for its implementation. Asked when India would change "contributions" to "commitments," Jayanthi Natarajan, India's environment minister, said, "Why should it be changed to 'commitment'? Developed countries should first show their commitment."

Ms. Natarajan stressed that developed countries had to increase their emission reduction pledges under the second commitment period of the Kyoto Protocol. "I only see with dismay that they are cutting down on their pledges," she said. Countries like Russia, Canada, Japan and New Zealand have not signed up for the second commitment period of the Kyoto Protocol, and Tokyo has also lowered its emission reduction target to 3.8 percent from 2005 levels, which in effect is a 3.1 percent increase in emissions from its 1990 levels.

The Philippines' negotiator, Yeb Sano, who had fasted for the duration of the conference to highlight the suffering from Typhoon Haiyan in his country, said that India "had played a very important role" in retaining the principles of "common but differentiated responsibilities" included in the 1992 Rio Declaration.

On the other hand, the recently released Global Carbon Project finds China (27 percent) and India (6 percent) to be among the world's four largest emitters of carbon dioxide, along with the United States (14 percent) and the 28-nation European Union (10 percent). The report said that China accounted for 70 percent of the global increase in 2012, while India was 7.7 percent. It also found that the United States still had highest per-capita emissions at 16 tons, compared to seven tons in China and 1.8 tons in India.

While India's per-person emissions were low now, the British climate economist Nicholas Stern in a recent conversation with India Ink said that even while grappling with poverty eradication, the country needed to think 20 years ahead. "India's emissions would be something like 12 billion to 13 billion tons of CO<sub>2</sub>, while the world budget in 2030 would be 32 or 33. So there is no way the world could achieve that," he said.

Mr. Waskow said that India had a responsibility to act, although not as much as others, including some developing nations. The climate expert suggested different types of contributions that are linked more closely to development goals, like increasing the use of clean energy. Already, some of the most vulnerable island nations and African countries are looking for major emitter developing countries like India and China to do more to combat climate change.

Acknowledging that the very existence of some countries was at stake, Mr. Prasad said, "We always say that we will do more than what they are doing. But that doesn't mean that we have to do as much as developed countries. There is a difference."

Some climate change activists, however, expressed concern that developed countries were gradually diluting their own responsibilities, while developing countries had lost their grip on keeping equity as a strong pillar in the climate talks. Chandra Bhushan, deputy director at the Center for Science and Environment in New Delhi, suggested that India should strengthen its negotiating stance "to operationalize equity," by securing its share of the carbon space left in the atmosphere.

The fifth I.P.C.C. report finds that the atmosphere can accommodate only another one trillion tons of carbon dioxide emissions to the end of the century if the rise in the global temperature is to be limited to 2 degrees Celsius, or 3.6 degrees Fahrenheit. "This has to be now apportioned between countries," said Mr. Bhushan. "Now the time has come for India to take a lead in this."

### **55. Japan's New CO2 Goal Dismays U.N. Climate Conference**

China, the EU and environmentalists criticized Japan at U.N. climate talks for slashing its greenhouse gas emissions target after its nuclear power industry was shuttered by the Fukushima disaster. The Japanese government decided to target a 3.8 percent emissions cut by 2020 versus 2005 levels. That amounts to a 3 percent rise from a U.N. benchmark year of 1990 and the reversal of the previous target of a 25 percent reduction. "Given that none of the nuclear reactors is operating, this was unavoidable," Environment Minister Nobuteru Ishihara said.

Japan's 50 nuclear plants were closed on safety concerns after the March 2011 earthquake and tsunami wrecked the Fukushima reactors northeast of Tokyo. Nuclear accounted for 26 percent of Japan's electricity generation and its loss has forced the country to import natural gas and coal, causing its greenhouse gas emissions to skyrocket.

Japan's new policy was widely criticized in Warsaw. China's climate negotiator Su Wei said: "I have no way of describing my dismay" about the revised target. The European Union also expressed disappointment and said it expected all nations to stick to promised cuts as part of efforts to halt global warming. "It is regrettable," Christiana Figueres, the U.N.'s climate chief, told reporters of Japan's goal. But she predicted that Japan's planned investments in energy efficiency and renewable power would prove that the target could be toughened. "This move by Japan could have a devastating impact," said Naoyuki Yamagishi of environmental campaign group WWF Japan. "It could further accelerate the race to the bottom among other developed countries."

Natural-gas consumption by Japan's 10 utilities was up 8.4 percent in October from a year earlier and coal use was up 4.4 percent as the companies used more fossil fuels to compensate for the nuclear shutdown, industry data showed. Prime Minister Shinzo Abe advocates a return to nuclear, but says he wants to reduce Japan's reliance on it over time. The process of restarting reactors will begin next year at the earliest and some will never come back on line due to safety concerns. With Abe facing opposition to nuclear power even from within his own party, the weaker emissions commitment could be an argument for restarting reactors, given that Japan for decades has touted the technology as clean energy.

"Our energy mix, including the use of nuclear power, is currently being reviewed. In that context, we decided to set this target at this point," Chief Cabinet Secretary Yoshihide Suga said of the



new goal. Hiroshi Minami, Japan's chief negotiator at the U.N. talks, said the new goal "is based on zero nuclear power" in future. He said the original target was based on a nuclear share of more than 40 percent of electricity generation.

Japan's decision added to gloom at the Warsaw talks, where no major countries have announced more ambitious goals to cut emissions, despite warnings from scientists about the risks of more heat waves, droughts, floods and rising sea levels.

Poor nations want the rich to commit to deeper emissions cuts while providing more finance to help developing nations deal with the impacts of climate change, a major issue at the talks after the Philippines was devastated by typhoon Haiyan, one of the most powerful ever recorded.

Australia has been criticized for watering down its climate policies, and Brazil reported a rise in the rate of deforestation in the Amazon - releasing more CO2 that had been stored in trees.

## **56. Gas Use Slows Diesel Demand in Thailand**

Diesel consumption should rise only slightly in 2014 due to a continued shift to the cheaper NGV and LPG (natural gas for vehicles and liquid petroleum gas) in the transport sector, according to the Energy Business Department. Director-general Somnuk Bomrungsalee said this rise in consumption was attributed to the increasing number of service stations selling gas. At present, the number of NGV stations stands at 478 nationwide, up from 472 at the end of 2012. Meanwhile, LPG stations also rose from 1,135 in 2012 to 1,723.

The department revealed that diesel consumption in the first 11 months of this year rose by only 2 per cent from 55.9 million liters a day to 57.1 million on average, from the same period last year.

In the period, NGV consumption rose 11 per cent from 7.7 million kilograms per day to 8.5 million, while LPG consumption rose by 67 per cent from 2.9 million kg to 4.8 million.

Meanwhile, petrol consumption rose 7.6 per cent from the same period last year, thanks to the delivery of new passenger cars. In 2013, one million new vehicles were registered. The department revealed that petrol consumption in the period rose from 20.8 million liters a day to 22.4 million.

In October, the LPG price for household use rose by Bt0.50 per kilo per month. Subsidies are extended to poor households. To date, about Bt4.9 million has been spent and the department plans to review the subsidy program in the next two months.

On the progress of the Bt20-billion fuel pipeline project, Somnuk said Chulalongkorn University has been commissioned to conduct a feasibility study for completion in 2014, separate from a study by Thai Petroleum Pipeline (Thappline). He noted that if Thappline is not ready to invest in the project, the government would do it. The construction is scheduled to start in 2016, and to be complete in 2018.

The department estimated that pipeline transmission would reduce fuel prices by at least Bt0.25 per liter, while reducing road accidents and energy used in transportation. In 30 years, this would reduce energy costs by Bt121.5 billion, it said.

## **MIDDLE EAST**

## **57. Israel Approves Compressed Natural Gas for Transport Use to Lower Costs, Emissions**

Compressed natural gas (CNG) can now be used for transportation fuel as an alternative to gasoline and diesel under a directive signed by Israel's minister for national infrastructures, energy and water. Although the minister stressed the potential economic savings of CNG use by consumers, he also noted that broader use of CNG in public and private transportation would "most significantly" lower air pollution.

"We're continuing to take steps in every area to reduce the cost of living, and savings by consumers are already in the offing," Minister Silvan Shalom said in a December 6<sup>th</sup> statement. "When natural gas replaces gasoline and diesel, drivers will be able to save thousands of shekels a year, and benefit from cleaner, cheaper travel."

Shalom's directive is part of a broader government effort to expand domestic use of natural gas supplies being tapped off Israel's coast. His ministry has encouraged the creation of a CNG infrastructure for vehicles and is currently financing half of the 3 million shekel (\$857,000) construction cost of Israel's first CNG fuel station, to be located at Zerifin, outside Tel Aviv. The ministry is also encouraging large car fleets to convert to CNG, it said.

The conversion of buses to CNG has been delayed by security concerns about the increased collateral damage the explosion of such a bus would cause. Public buses in Israel have repeatedly been targeted in terrorist bombings.

The Transportation Ministry has yet to issue standards for private vehicles powered by natural gas. And the National Infrastructure Ministry's estimates of consumer savings are also likely to change when the Israel Tax Authority completes its plan to raise taxes on all natural gas.

## **SOUTH AMERICA**

### **58. Peru Uses Climate Twist to Lure Tourists to Shrinking Glacier**

In its heyday, the Pastoruri glacier in central Peru, drew daily throngs of tourists packed into dozens of double-decker buses 16,000-feet (5,000-meters) high into the Andes to ski, build snowmen and scale its dizzying peaks. It was so bright with ice and snow that sunglasses were mandatory.



But in less than 20 years, including at least 10 of the hottest on record, Pastoruri has shrunk in half, and now spans just a third of a square mile (0.9 square km).

Melting ice has given way to slabs of black rock, two small lakes gathering the glacial runoff have swollen together, and officials have banned climbing on the unstable formation.

"There isn't much left of our great tourist attraction," said local guide Valerio Huerta, squinting at Pastoruri. "Tourists now always leave

totally disappointed."

The dwindling number of visitors to Pastoruri - 34,000 last year compared to an estimated 100,000 per year in the 1990s - has eroded tourism earnings that support thousands in the Cordillera Blanca, Peru's most popular cluster of snowy peaks.

Now locals are making a bid to lure tourists back to Pastoruri before it is gone completely - likely in a decade. Instead of marketing Pastoruri as the pristine Andean winter wonderland it once was - visible in outdated pictures that still hang in hotels and restaurants in nearby towns - the peak is being rebranded as a place to see climate change in action.

The "climate change route," to officially launch in March, is the latest offbeat answer to rising temperatures that have eaten up 30 to 50 percent of Andean glaciers in recent decades. Peruvians have insulated ice with sawdust to stave off melting and painted exposed rock white to reflect sunlight. Those experiments curb glacial retreat on a small scale, but cannot bring ice blocks like Pastoruri back from the brink, said Selwyn Valverde with the Huascaran National Park, home to Pastoruri and more than 700 other shrinking Peruvian glaciers.

"It's irreversible at this point," he said, adding that Pastoruri is no longer technically a glacier because it does not build up ice in the winter to release in the summer. "It's just loss, loss, loss now. It doesn't accumulate anymore."

Peru is home to 70 percent of the world's tropical glaciers, formations particularly sensitive to temperature hikes. Supporters of the route say Pastoruri, an hour-long flight from Lima and then another hour's drive from the regional capital Huaraz, is perfectly positioned to show the world the impacts of warming that will one day be widespread.

On the climate change route, visitors pass marshes and ponds red with rust as they walk over a hill that was once ice. "Smell the water," Valverde said, bringing a handful to his nose. "Do you smell the iron?" Mountain rocks covered for years are shedding minerals as ice melts off them -

rendering water undrinkable with high levels of heavy metals like cadmium and iron, Valverde said.

Newly exposed rocks have also revealed fossilized marine species that likely last saw the light of day before the start of the last ice age - more than 100,000 years ago.

There are no official figures on falling revenues linked to Pastoruri's retreat. But Marcos Pastor with the state agency charged with protecting natural sites said about a quarter of people who live in and around the Cordillera Blanca depend on glacier tourism.

The threat to tourism might seem trivial compared with other potential climate change impacts. Expanding glacier-fed lakes threaten to wipe out entire towns if they burst, minerals leaching into watersheds pose new health risks, and millions along Peru's crowded desert coast will eventually face diminishing supplies of water.

But tourism is an important source of cash for hundreds of towns in the Peruvian Andes, where there are relatively few jobs and the trickle-down benefits of a long metals boom can be hard to find. "Tourism is one of the few economic activities in Peru that distributes money directly to locals," said Pastor. At Pastoruri that means money not just for food vendors but for those who service outhouses or rent horses, bus drivers, guides and companies that coordinate trips from city desks.

Travel agent Artidoro Salas with Andes Hard Expeditions said he has thought of leaving his hometown Huaraz to start a tourism venture where there is stronger demand - maybe Cusco, the home of the popular Incan ruins at Machu Picchu. "There are at least eight travel agencies that have gone out of business here over the past decade - and those are only the ones I know of," said Salas. "Pastoruri has been a big problem. It was the main reason tourists used to come here." Salas has gotten by tailoring trips for adventure travelers, and is curious to see if a niche market for climate change tourism might grow from the melted remains of Pastoruri.

Park official Valverde said the route aims to inspire, not depress. He pointed to lichens and mosses that have managed to thrive in oxidized puddles at the foot of Pastoruri. "If they can adapt to that, why can't we, too, adapt to climate change?" he said. "The reality is that we already are. That's what this route is all about."

## **CARRIBEAN ISLANDS**

### **59. Ultra-Low Sulfur Diesel Launched In Barbados**

Barbados is the first island in the Caribbean to officially move from High Sulfur Diesel to Ultra-Low Sulfur Diesel (ULSD) according to an announcement at the official press launch of the procurement of ULSD at Government Headquarters. Acting Permanent Secretary in the Division of Energy and Telecommunications in the Prime Minister's Office, Jehu Wiltshire, said that the Division of Energy and the Barbados National Oil Company Limited (BNOCL) have been working together to make the transition as smooth as possible.

He noted that both organizations held a number of meetings with various stakeholders associated with ULSD, including Government entities, like the Transport Board, Sanitation Service Authority, the Ministry of the Environment and the Ministry of Economic Affairs, along with other players such as the Barbados Fisherfolk Association, the Barbados Chamber of Commerce and Industry and the automobile dealers on the island.

The Acting Permanent Secretary said that a decision was taken not to move from High Sulfur Diesel to Low Sulfur Diesel because it would not be feasible in the long run. "We would have initially agreed on the procurement of Low Sulfur Diesel, but the fact that the market is going quickly towards the use of Ultra-Low Sulfur Diesel, we realized the best decision would be to go for the Ultra-Low Sulfur Diesel instead of Low [Sulfur Diesel]".

Chairman of the BNOCL, Dr. Leonard Nurse, said that his company remained committed to providing the best possible and cleanest fuels to the island. He added that the procurement of the ULSD was a step in the right direction as it was more environmentally friendly. "I want to point out that we have taken another important step along the road to improving air quality, human health and environmental health in Barbados, following the launch some years ago of unleaded petrol," he told those present.

Dr. Nurse said that the BNOCL spent approximately \$500,000 preparing the tanks for ULSD, adding that it was decided to clean the tanks thoroughly instead of just flushing them. "We took the decision at the level of the board not to flush out the tanks to import the Ultra-Low Sulfur Diesel and add it to the existing diesel ... We cleaned the tanks from scratch. So what we are getting is not mixed with anything ... It was a cost to us but we took that decision," he explained.

ULSD has been available at some services stations since late November, and it is not expected to cost more than Ultra-High Sulfur Diesel. Like other products it will vary according to the world market. "The price is not going to be substantially different from the other diesel, but let me say that as of last night I am told it is one cent cheaper than High Sulfur Diesel, but we do not control the commodity price on the world market", Dr. Nurse stressed.

Prime Minister Freundel Stuart described this as a "great step forward for Barbados". He said: "In whatever area of national life we operate we need a sound and healthy environment and this initiative is intended to achieve that objective."

Acknowledging that Barbados had committed itself to being the most advanced green economy in the region and in the Americas, the Prime Minister stressed that the use of High Sulfur Diesel was inconsistent with Government's objective of creating a sound environment.

The Ultra-Low Sulfur Diesel was on the market from late last month and Mr. Stuart said that if Government had yielded to the suggestion of experimenting with the low and high sulfur diesels, then the Barbados National Terminal Company Limited would have had to embark on massive expenditure to accommodate the exercise. "We did not think that any two diesel options made sense because of the retrofitting that would have had to take place at the National Terminal and at service stations. We are confident that all of the necessary precautions have been taken to guarantee a smooth transition from High Sulfur to Ultra-Low Sulfur Diesel," he stated.

Standard diesel carries a maximum sulfur content of 5,000 parts per million, while ultra-low sulfur diesel carries a maximum content of 15 parts per million. Many vehicles and engines are now manufactured to operate more efficiently with ultra-low sulfur fuels.

## **GENERAL**

### **60. Honda Accord Named Green Car of Year at L.A. Auto Show**

Honda Motor Co.'s Accord was named Green Car of the Year, the editor of the Green Car Journal announced at the L.A. Auto Show. The Accord won in large part because it offers high fuel economy ratings for gasoline, gasoline-battery hybrid and plug-in hybrid versions of the venerable sedan, said Ron Cogan, editor of the Green Car Journal.

"This year's winner offers something for everyone," he said.

The Accord beat out four other finalists: the Audi A6 TDI, the BMW 328d, the Mazda Motor Co Mazda3 and the Toyota Motor Corp Corolla. Audi is a luxury brand of parent Volkswagen AG.

It was the second year in a row that the winner was a top-selling sedan that offered U.S. consumers gasoline, gasoline-battery hybrid and plug-in hybrid versions. Last year's winner of the prestigious award was Ford Motor Co.'s Fusion midsize sedan.

Mike Accavitti, head of automotive operations for American Honda, said the award is an obvious selling point for the Accord.

The Accord is the best-selling of the five finalists. Through October of this year, Accord sales were up 11 percent at 307,000 in the U.S. market, making it the second-best selling sedan behind the Toyota Camry.

The four-cylinder version of the Accord is rated by the Environmental Protection Agency at 30 miles per gallon, the hybrid version at 47 mpg and the plug-in hybrid at 46 mpg under gasoline power and 115 mpg-equivalent under hybrid-electric power. All ratings are for combined city and highway driving.

Accavitti said the award also gives credence to Honda's plans for more hybrid vehicles. "You are going to see more and more of these hybrid motors coming across our lineup."

In addition to the Ford Fusion, previous winners have included General Motors Co.'s plug-in hybrid Chevrolet Volt in 2011 and Honda's natural gas-powered Civic in 2012.

The award has been presented since 2006, when Ford won for its Mercury Mariner hybrid, a since-discontinued sport-utility vehicle that attained about 27 mpg and had a starting price of nearly \$30,000.

## **61. Greenhouse Gas Volumes Reached New High in 2012: WMO**

Atmospheric volumes of greenhouse gases blamed for climate change hit a new record in 2012, the World Meteorological Organization (WMO) said. "For all these major greenhouse gases the concentrations are reaching once again record levels," WMO Secretary-General Michel Jarraud told a news conference in Geneva at which he presented the U.N. climate agency's annual Greenhouse Gas Bulletin.

Jarraud said the accelerating trend was driving climate change, making it harder to keep global warming to within 2 degrees Celsius, a target agreed at a Copenhagen summit in 2009.

"This year is worse than last year, 2011. 2011 was worse than 2010," he said. "Every passing year makes the situation somewhat more difficult to handle, it makes it more challenging to stay under this symbolic 2 degree global average."

Greenhouse gas emissions are set to be 8-12 billion tons higher in 2020 than the level needed to keep global warming below 2 degrees, the U.N. Environment Programme said recently.

If the world pursues its "business as usual" trajectory, it will probably hit the 2 degree mark in the middle of the century, Jarraud said, noting that this would also affect the water cycle, sea levels and extreme weather events.

"The more we wait for action, the more difficult it will be to stay under this limit and the more the impact will be for many countries, and therefore the more difficult it will be to adapt."

He said the climate system was dominated by the ocean rather than the atmosphere, and the time needed to warm the seas meant the full impact of current emissions would only be felt later. "Even if we were able to stop today - we know it's not possible - the ocean would continue to warm and to expand and the sea level would continue to rise for hundreds of years."

The WMO bulletin said **the volume of carbon dioxide, or CO<sub>2</sub>, the primary greenhouse gas emitted by human activities, grew faster in 2012 than in the previous decade, reaching 393.1 parts per million (ppm)**, 41 percent above the pre-industrial level. The amount of the gas in the atmosphere grew by 2.2 ppm, higher the average of 2.02 ppm over the past 10 years.

Carbon dioxide is very stable and is likely to remain in the atmosphere for a long time, Jarraud said. The concentrations were the highest for more than 800,000 years, he said.

"The increase in CO<sub>2</sub> is mostly due to human activities," Jarraud said. "The actions we take now or don't take now will have consequences for a very, very long period."

The second most important greenhouse gas, methane, continued to grow at a similar rate to the last four years, reaching a global average of 1819 parts per billion (ppb) in 2012, while the other main contributor, nitrous oxide, reached 325.1 ppb.

## **62. Nitrous Oxide Emissions Could Double By 2050 -UNEP**

Nitrous oxide (N<sub>2</sub>O) emissions could almost double by 2050 if more aggressive action is not taken, undermining global efforts to curb climate change, the United Nations' Environment Programme (UNEP) said recently.

Nitrous oxide exists naturally in the atmosphere in trace amounts. However, it is the third most potent greenhouse gas after carbon dioxide and methane due to human activities such as agriculture, fossil fuel combustion, waste water management and industrial processes.<sup>12</sup>

N<sub>2</sub>O emissions into the atmosphere are currently around 5.3 million tons a year but this could almost double by 2050 if efforts to cut the gas are not increased, the UNEP report said. More efficient use of fertilizers, less meat consumption, and improved waste water treatment are some ways to cut N<sub>2</sub>O.

Emissions could be cut by 1.8 million tons a year from 2020 and the benefits could be worth over \$160 billion annually across sectors such as agriculture, manufacturing, transportation and electricity production, UNEP said.

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<sup>12</sup> This estimate does not include recent studies which indicate that Black Carbon may actually be the second most potent greenhouse pollutant after carbon dioxide.

The Kyoto Protocol climate treaty includes N<sub>2</sub>O among the greenhouse gases the world has to reduce to fight global warming but more aggressive efforts are needed, UNEP said. "We need all hands on deck to combat the serious and significant increases in N<sub>2</sub>O levels in the atmosphere," said U.N. Under-Secretary-General and UNEP Executive Director Achim Steiner. "It has a disproportionate impact on global warming because of its radiative properties and long lifetime in the atmosphere, which is 120 years on average," he added.

Although less potent than carbon dioxide or methane, N<sub>2</sub>O is often overlooked and could undermine efforts to prevent the ozone layer depleting, the report said. The ozone layer shields the Earth from the sun's harmful rays and has begun to recover from depletion over the past couple of decades due to curbs on chlorofluorocarbons (CFCs) and other halogenated chemicals.

### **63. Warming Seen Worse As Nations Fail To Meet Carbon Goals**

The world is getting further off track in limiting global warming with setbacks in Japan and Australia outweighing positive signals from the United States and China, according to a recent study. A Climate Action Tracker compiled by scientists said the world was headed for a temperature rise of 3.7 degrees Celsius (6.7 Fahrenheit) above pre-industrial times by 2100, against 3.1C (5.8F) if governments stuck to promised cuts in greenhouse gas emissions.

Governments meeting in Warsaw from November 11-22 are trying to find ways to limit global warming to an agreed ceiling of less than 2.0C (3.6F) above pre-industrial levels to avert more heat waves, droughts, downpours and rising sea levels.

"We are seeing a major risk of a further downward spiral in ambition, a retreat from action, and a re-carbonization of the energy system led by the use of coal," said Bill Hare, director of Climate Analytics. The new study, by Climate Analytics, the Potsdam Institute for Climate Impact Research and Ecofys, said Japan's decision last week to ease its 2020 greenhouse gas emissions goals and Australia's abandonment of its emissions trading scheme made it harder to reach the global 2C goal.

"These negative signals tend to outweigh some positive signals," the study said, noting that U.S. President Barack Obama had outlined tougher action and that China was, for instance, banning coal-fired power plants in some areas.

In September, the U.N. panel of climate scientists said that world temperature rises were headed to exceed 2.0C under most of its scenarios. It said that limiting warming would require "substantial and sustained" cuts in emissions. The panel also raised the probability that human activities are the main cause of warming since 1950 to 95 percent, up from 90 percent in its previous assessment in 2007.

The Warsaw talks are meant to lay the groundwork for a global deal in 2015 to combat climate change. But many developed governments are focusing more on reviving weak economic growth than cutting their greenhouse gas emissions, while developing nations led by China and India insist that the rich have to take the lead.

People around the world are feeling the "wrath of a warming planet", U.N. Secretary-General Ban Ki-moon said in Warsaw, urging almost 200 governments to take tougher action to reach a deal in 2015 on fighting global warming.



Ban told environment ministers they had a steep climb ahead to agree to cut rising greenhouse gas emissions that scientists say fuel more extreme weather. Many developed nations are more focused on spurring sluggish economic growth than fixing global warming, despite scientists' increased certainty that human emissions will cause more heat waves, droughts, floods and rising sea levels.

"All around the world, people now face and fear the wrath of a warming planet," Ban said, referring to extreme weather events such as Typhoon Haiyan that killed more than 3,900 people in the Philippines this month. Current pledges for curbing global warming were "simply inadequate", Ban said. "Here, too, we must set the bar higher."

He said governments needed to step up aid to help poor nations slow their rising emissions of greenhouse gases and to adapt to the impacts of warming.

A report by 49 experts in 10 nations said that carbon dioxide emissions from burning fossil fuels will rise to a record 36 billion tons (1 tonne = 1.102 metric tons) this year. "I am deeply concerned that the scale of our actions is still insufficient to limit global temperature rise to below 2 degrees Celsius from pre-industrial levels," he said.

Ban has invited world leaders to attend a summit at U.N. headquarters in New York on September 23, 2014. "I ask all who come to bring bold new announcements and action," he said.

#### **64. Oceans Suffer Silent Storm of Acidification: International Study**

Global warming is causing a silent storm in the oceans by acidifying waters at a record rate, threatening marine life from coral reefs to fish stocks, according to a new international study. The report, by 540 experts in 37 nations, said the seas could become 170 percent more acidic by 2100 compared to levels before the Industrial Revolution. Carbon dioxide, the main greenhouse gas, can become a mild acid when mixed with water.

Acidification is combining with a warming of ocean waters, also caused by a build-up of greenhouse gases in the atmosphere, and other man-made factors such as higher pollution and overfishing, the report said.

The study, released on the sidelines of the meeting in Warsaw on ways to slow global warming, estimated that acidity of the oceans had already increased by 26 percent since the Industrial Revolution in the 18th and 19th centuries. A 170 percent increase in acidity is equivalent to cutting the Ph level of the ocean, a scale of acidity and alkalinity, to 7.9 from 8.2 on a logarithmic scale. Battery acid rates about 1 and soap, an alkaline, is about 10.

The pace of acidification was the fastest in at least 55 million years, the scientists said. Acidification undermines the ability of everything from corals to crabs to build protective shells and has knock-on effects on the food web.

"Marine ecosystems and biodiversity are likely to change as a result of ocean acidification, with far-reaching consequences for society," according to the summary led by the International Geosphere-Biosphere Programme. "Economic losses from declines in shellfish aquaculture and the degradation of tropical coral reefs may be substantial owing to the sensitivity of mollusks and corals to ocean acidification," it said.

And some studies have found that young clown fish, made famous by the movie "Finding Nemo", behaved as if drunk in more acidic waters, their brains apparently disoriented.

"If society continues on the current high emissions trajectory, cold water coral reefs, located in the deep sea, may be unsustainable and tropical coral reef erosion is likely to outpace reef building this century," the report said.

Deep cuts in emissions of greenhouse gases, from power plants, factories and cars, would limit acidification.

#### **65. 2013 Is Seventh Hottest Year, Rising Seas Worsen Typhoon**

This year is the seventh warmest since records began in 1850 and rising sea levels caused by climate change are aggravating the impact of storms such as Typhoon Haiyan in the Philippines, the World Meteorological Organization (WMO) said. More greenhouse gases in the atmosphere meant a warmer future, and more extreme weather, was inevitable, WMO Secretary-General Michel Jarraud said in a statement during the climate talks in Warsaw.

The WMO said the first nine months of the year tied with the same period of 2003 as seventh warmest, with average global land and ocean surface temperatures 0.48°C (0.86°F) above the 1961-1990 average. "This year once again continues the underlying, long-term trend," towards higher temperatures caused by global warming that are causing more heat waves and downpours, Jarraud said.

The WMO said it was likely to end among the top 10 warmest years since records began in 1850.

Extreme events include super typhoon Haiyan, one of the most intense in history that smashed into the Philippines, it said. The WMO said, however, that it was impossible to blame climate change for individual storms.

"The jury is still out on whether tropical cyclones will become more frequent in the future," Jeremiah Lengoasa, deputy WMO Secretary-General, told a news conference. He pointed to wide uncertainties about how they form.

But sea level rise, caused by melting ice and an expansion of water as it warms, is worsening storm surges and had been especially rapid in the western Pacific Ocean, driven by local changes in winds and sea currents. One tidal gauge at Legaspi in the Philippines showed a rise of 35 cms (14 inches) in average sea levels from 1950-2010, against a global average of 10 cms, WMO data showed.

Other extremes this year have included record heat waves in Australia and floods from Sudan to Europe, the WMO said. Japan had its warmest summer on record.

Apparently bucking a warming trend, sea ice around Antarctica expanded to a record extent. But the WMO said: "Wind patterns and ocean currents tend to isolate Antarctica from global weather patterns, keeping it cold."

#### **66. U.N. Climate Panel Corrects Carbon Numbers in Major Report**

The United Nation's panel of climate experts revised estimates of historical greenhouse gas emissions, made in September, both up and down but said the errors did not affect conclusions

that time was running out to limit global warming. The panel had hoped to avoid more corrections after an embarrassing error about Himalayan ice-melt in its 2007 report.

"I don't see it as a significant change," IPCC chairman, Rajendra Pachauri, told reporters on the sidelines of the Warsaw meeting.

Among changes, the IPCC revised down the cumulative amount of carbon emitted since 1860-1881 to 515 billion tons from 531 billion given in September, and revised up the amount emitted since 1750 to 555 billion tons from 545 billion.

Global emissions are now running at about 10 billion tons of carbon a year, meaning those change are equivalent to about a year to a year and a half of emissions.

"Errors in the summary for policymakers were discovered by the authors of the report after its approval and acceptance by the IPCC," it said in a statement.

The IPCC says the world has emitted more than half the estimated 1 trillion ton of carbon viewed as the maximum to keep temperatures within safe limits at below two degrees Celsius (3.6 Fahrenheit) above the period 1861-1880 with more than a two-thirds probability, it said.

Many experts say that the world has only a few decades left before breaching the IPCC safety limits unless tough action is taken to cut emissions.

When asked if the correction would affect the credibility of the IPCC, Pachauri said, "I don't think so."

Bob Ward, of the London School of Economics, said Monday's correction made little difference to the overall carbon budget of a trillion tons. "Climate change 'skeptics' will no doubt desperately seize on these corrections and falsely allege that it undermines the whole report, but the public and policy-makers should not be fooled by such claims," he said in a statement.

## **67. UN Draft Stresses Risk Of Global Warming, From Economy to Health**

Global warming poses a mounting threat to health, economic growth, crops and water supplies, according to a draft report by top scientists that puts unprecedented emphasis on the risks of a changing climate. A leaked 29-page draft by the U.N. Intergovernmental Panel on Climate Change (IPCC), about the impacts of rising temperatures and due for release in March 2014, mentions "risk" 139 times against just 41 in its last assessment in 2007.

The increased stress on risk may make the case for cutting greenhouse gas emissions clearer both to policymakers and the public by making it sound like an insurance policy for the planet, according to analysts.

Many governments have long pleaded for greater scientific certainty before making billion-dollar investments in everything from flood barriers to renewable energies. But certainty is elusive in climate science, as it is in predicting anything from the weather to Wall Street.

"The IPCC has transitioned to what I consider to be a full and rich recognition that the climate change problem is about managing risk," Christopher Field, co-chair of the IPCC group preparing the report, told reporters. Field, a professor at Stanford University, also said there was more

certainty about many aspects of climate change than in 2007. He cautioned the draft was subject to change in editing.

It says, for instance, that a rise of temperatures of more than 2.5 degrees Celsius (4.5 Fahrenheit) above pre-industrial times could lead to economic losses of between 0.2 and 2.0 percent of global income.

It also says that warming will exacerbate threats to health, damage yields of major crops in many areas and lead to more floods. It could also exacerbate poverty and economic shocks that are root causes of violent conflicts.

"Responding to climate-related risks involves making decisions and taking actions in the face of continuing uncertainty about the extent of climate change and the severity of impacts in a changing world," the draft says.

The panel's credibility is under extra scrutiny, for its last report in 2007 wrongly exaggerated the melt of Himalayan glaciers. Several reviews said that this error, however, did not undermine the key findings in 2007.

James Painter, of the Reuters Institute for the Study of Journalism at Oxford University, said that the focus on risk may make the panel's message clearer. "More risk language helps to shift the public debate away from the idea that decisions should be delayed until absolute certainty is obtained - something that may never be achieved." He said politicians and businesses were used to making decisions based on risks. And many people insure their homes against fire even though the risks of a blaze are small. Field said the report tries to capture a wide range of risks, including highly unlikely events that might have a major impact. "That's the way risk is generally formulated if you are an insurance company or figuring out an anti-terrorism policy."

The report is the second in a four-part IPCC assessment meant to guide governments that have promised to agree a pact in 2015 to slow climate change. The first, in September, raised the probability that most global warming is man-made to at least 95 percent from 90 in 2007.

#### **68. China, India Split with Other Developing Countries over Wording in UN Summit Text**

China and India's success in weakening text adopted at a climate summit in Warsaw has created friction with other developing nations that are seeking to step up the fight against climate change. The two countries insisted on single-word changes for a deal at a United Nations conference involving 190 nations on November 23<sup>rd</sup>. Instead of making "commitments" to roll back fossil fuel emissions, they signed up for "contributions," a formulation that allows more flexibility in their action. Those last-minute revisions puts the two largest developing nations at odds with their smaller brethren, especially island states and Bangladesh that are the most threatened by rising temperatures.

The deal adopted in Warsaw sets out the first steps toward the next major agreement on reducing greenhouse gas emissions. Envoys intend to adopt the package in 2015 and bring it into force no later than 2020, replacing the Kyoto Protocol, which was negotiated in 1997.

Kyoto's limits applied only to industrial nations, leaving only voluntary measures for nations classified as developing, such as China and India. Since then, China has surpassed the U.S. as the world's biggest polluter, and India is catching up.

With emissions at a record, the UN says the world is on track to surpass a 2 degree Celsius (3.6 degrees Fahrenheit) temperature increase by 2100 that would raise sea levels and trigger more violent storms. "We're leading to a 3- or 4-degree world," said Gambian envoy Pa Ousman Jarju. "That is catastrophic for the least developed nations, small island states and the African continent."

The exact wording of the deal is important because it gives a signal to governments and business about the direction of policy. The U.S. and EU preferred "commitments" because it suggests a target all nations will stick to. China and India sought "actions" as well as extra language that referenced the old divisions between rich and poor nations from the 1992 UN Framework Convention on Climate Change. That was rejected by developed countries. "Contributions" was the compromise.

The typhoon that devastated the Philippines earlier in November struck just as delegates were arriving at the UN talks in the Polish capital. It led to an emotional appeal for action from the Philippine negotiator Yeb Saño, who was joined by more than 100 activists in fasting during the talks.

In the past, developing nations both large and small stood together at the UN talks, pressing the industrial world to move first on reducing pollution. Now, the scale of emissions coming from the biggest developing nations is alarming the smaller ones. They pushed at the talks for help from rich countries to contain damages from climate change. "This is a question of survival," Quamrul Chowdhury, a negotiator for Bangladesh, said in an interview in Warsaw. "So many millions of people's lives are at stake, and we are not responsible for this menace. We are innocent victims."

In the closing hours of the conference, delegates who cared most about the wording gathered in a huddle to determine the phrasing in a text the conference would adopt. Envoys from South Africa and the Marshall Islands were among those who preferred the word "commitments" to "contributions." While the smaller countries are pressing for action, China and India sought wiggle room on the nature of pledges they'd have to make for the 2015 deal.

The 28-nation EU, along with the U.S., is insisting all nations join in the next pact, since the growth in pollution from China and India mean Kyoto's limits now apply to less than 15 percent of global emissions.

Su Wei, the Chinese lead negotiator at the UN talks, told delegates he had "serious concerns about the word 'commitment' " and that for countries like his own, the next deal should call only for "enhanced actions" on emissions. He brushed aside concerns that China isn't ready to move on global warming. "We are very serious to come forward with some kind of actions," Su said in the interview. "That would certainly be a very important contribution."

India emphasized the importance of "equity" and "common but differentiated responsibilities." Those principles are interpreted by developing nations to mean that the richer countries must make a bigger effort to cut emissions than the poorer ones. "We share the common goal to tackle the threat of climate change," Environment Minister Jayanthi Natarajan told delegates at the close of the meeting in Warsaw.

The two-decade-old division frustrates the U.S. and EU, which say global warming can't be fixed without a stronger effort by those with the quickest growing emissions. "When you hear some of the things that were said during the course of the week that suggested, 'We're not making any commitments; commitments aren't for developing countries,' that's not going to get us where we

need to go," U.S. Special Envoy for Climate Change Todd Stern told reporters in Warsaw. "These issues are going to be live, serious and difficult."

Ministers convene next in December 2014 in Lima, Peru, and then intend to adopt a final package in Paris in two years. It was two years ago in South Africa that China and India backed work toward a treaty in 2015 that would involve all nations, including them.

### **69. Short-Cut to Produce Hydrogen Seen As Step to Cleaner Fuel**

Scientists have produced hydrogen by accelerating a natural process found in rocks deep below the Earth's surface, a short-cut that may herald the wider use of what is a clean fuel, a study showed recently. Used in battery-like fuel cells, hydrogen is being widely researched as a non-polluting fuel, but its use is so far hampered by high costs. A few hydrogen vehicles are already on the roads, such as the Honda FCX Clarity and Mercedes-Benz F-Cell, and more are planned.

Researchers in France said aluminum oxide speeded up a process by which hydrogen is produced naturally when water meets olivine, a common type of rock, under the high temperatures and pressures found at great depths. "We have overcome a preliminary step for a carbon-free energy production," lead researcher Muriel Andreani of the University Claude Bernard Lyon 1 in France told reporters.

The addition of aluminum oxide accelerated the natural process by between 7 and 50 times, using temperatures of between 200 and 300 degrees Celsius (400-570 Fahrenheit) at a pressure equivalent to twice the depth of the deepest ocean. In the process, olivine turns into the mineral serpentine and water splits into its components, hydrogen and oxygen.

Currently, the most widely used technology for producing hydrogen - separating it from natural gas - requires far higher temperatures of 700 degrees Celsius (1,300 Fahrenheit) and releases heat-trapping carbon dioxide as a by-product. Using lower temperatures would save energy and money.

Fuel cells, which meld hydrogen with oxygen in the air to yield electricity, emit only water. That makes them attractive as a way to cut greenhouse gas emissions and air pollution.

Far more research is needed to see if the French findings could be increased to a commercial scale, said Jesse Ausubel of the Rockefeller University in New York. "Scaling this up to meet global energy needs in a carbon-free way would probably require 50 years," he said in a statement. "But a growing market for hydrogen in fuel cells could help pull the process into the market."

The findings were presented to the American Geophysical Union, meeting in San Francisco from December 9-13, after an initial report in the journal *American Mineralogist* in October. The work is part of the Deep Carbon Observatory (DCO), a 10-year project due for completion in 2019 involving 1,000 researchers in 40 nations.

### **70. Arctic Thaw Tied To European, U.S. Heatwaves and Downpours: Study**

A thaw of Arctic ice and snow is linked to worsening summer heat waves and downpours thousands of miles south in Europe, the United States and other areas, underlying the scale of the threat posed by global warming, according to scientists. Their report, which was dismissed as inconclusive by some other experts, warned of increasingly extreme weather across "much of North America and Eurasia where billions of people will be affected".

The study is part of a drive to work out how climate change affects the frequency of extreme weather, from droughts to floods. Governments want to know the trends to plan everything from water supplies to what crops to plant.

But the science of a warming Arctic is far from settled.

Writing in the journal *Nature Climate Change*, experts in China and the United States said they could not conclusively say the Arctic thaw caused more extreme weather, or vice versa. But they said they had found evidence of a relationship between the two. Rising temperatures over thawing snow on land and sea ice in the Arctic were changing atmospheric pressure and winds, the report said.

The changes slowed the eastward movement of vast meandering weather systems and meant more time for extreme weather to develop - such as a heatwave in Russia in 2010, droughts in the United States and China in 2011 and 2012, or heavy summer rains that caused floods in Britain in 2012, the paper added.

"The study contributes to a growing body of evidence that ... the melting Arctic has wide-ranging implications for people living in the middle latitudes," lead author Qihong Tang of the Chinese Academy of Sciences told the press.

Sea ice in the Arctic shrank to a record low in 2012 and the U.N.'s panel of climate scientists says it could almost vanish in summers by 2050 with rising greenhouse gas emissions.

But some scientists said other factors, including the usual vagaries of weather or changing sea temperatures, may explain some recent extremes rather than changes in the Arctic. "The jury is still very much out," James Screen, an expert at Exeter University in England, said of efforts to see if there is a link between a melting Arctic and extremes further south in the northern hemisphere. Some evidence in the new study was "plausible ... but far from conclusive," he said, adding that some of the data were not statistically significant and might be random variations.

"For people on the streets, what really matters is whether the extremes are changing or not. But from the scientific perspective we want to understand why," he said. Better understanding is vital to make reliable predictions.

James Overland, of the U.S. National Oceanic and Atmospheric Administration, said many extremes studied were in the past decade, too short to know for sure if they were enhanced by Arctic ice and snow melt or not. "Skeptics remain unconvinced that Arctic/mid-latitude linkages are proven, and this work will do little to change their viewpoint," he wrote in a comment in *Nature Climate Change*. Still, he said there was a high potential for an Arctic influence, given the outlook for a further thaw.

## **71. Temperature Limit Too High To Avoid Climate Change: Study**

An internationally agreed target to limit rises in global average temperatures to within 2 degrees Celsius is around double the threshold that would avoid catastrophic climate change, a study by 18 eminent scientists said.

Governments decided in 2009 that such temperature increases needed to be no more than 2 degrees C (3.6 Fahrenheit) above pre-industrial levels to avoid effects such as more extreme

weather, higher sea levels and ocean acidification. They aim to agree by 2015 on a global deal to cut the greenhouse gas emissions blamed for climate change, but the reductions will not come into force until after 2020. Last month, a United Nations conference in Warsaw kept alive hopes for the 2015 deal but nations made little progress on committing to ambitious emission cuts to keep the world on track towards the 2 degree target. However, a study published in U.S.-based scientific journal PLOS One said the 2 degree limit was too high and a more appropriate target was around 1 degree C.<sup>13</sup>

"Some climate extremes are already increasing in response to warming of several tenths of a degree in recent decades; these extremes would likely be much enhanced with warming of 2 degrees C or more," the report's authors said in a statement.

The scientists involved in the study are James Hansen and Jeffrey Sachs of the Earth Institute at Columbia University, Pushker Kharecha of the NASA Goddard Institute for Space Studies, and 15 other climate experts from universities and institutes across the world.

"An appropriate target is to keep global temperature within or close to the temperature range in the Holocene - the interglacial period in which civilization developed," they said. The Holocene is the current geological epoch that started around 11,700 years ago and has experienced relatively stable temperatures. The world cooled slowly in the last half of the Holocene but warming of 0.8 degree C over the past 100 years has brought the global temperature back to near the epoch's maximum, the study said.

Warming could be held to around 1 degree C if emissions from burning fossil fuels were cut by 6 percent a year from 2013 and by reforestation, which would result in 500 billion metric tons (551.16 billion tons) of cumulative carbon in the atmosphere near the end of the century, the study said. However, if emissions continued to grow until 2020, they would then have to be reduced by 15 percent a year to reach 500 billion metric tons. "The huge fossil fuel energy infrastructure now in place makes it practically certain that the 500 (billion metric tons) limit will be exceeded," the study said.

The United Nations' panel of climate experts has said the world needs to stay within a 1 trillion metric tons "carbon budget" to meet the 2 degree target. However, this level would spur slower climate effects such as ice melt and ocean acidification and result in warming of 3-4 degrees C, the PLOS One study said.

The full study is available at: [www.plosone.org](http://www.plosone.org)

## **72. First 33 Cities Selected to Receive Grants to Boost Resilience to Global Warming**

On December 2<sup>nd</sup>, the Rockefeller Foundation announced the first 33 cities that will receive grants to develop resilience to climate change. New York, Rome and Bangkok were among the cities selected from more than 400 applications to participate in the foundation's 100 Resilient Cities Centennial Challenge.

The winning cities, each with a population of more than 50,000, will receive support to hire a "chief resilience officer" to oversee development of a citywide plan for decreasing vulnerabilities to climate change. They also will receive assistance with implementing their resilience plans over

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<sup>13</sup> Assessing "Dangerous Climate Change": Required Reduction of Carbon Emissions to Protect Young People, Future Generations and Nature



the next three years. In addition, the winners will join the 100 Resilient Cities Network, which will share expertise and best practices.

"The 33 cities named today represent a diversity of urban resilience needs, and as the inaugural members of the 100 Resilient Cities Network, they have much to share with and learn from each other," Judith Rodin, president of the Rockefeller Foundation, said in a statement.

The Rockefeller Foundation has committed \$100 million to the challenge.

### **73. Newly Discovered Greenhouse Gas '7,000 Times More Powerful Than CO2'**

A new greenhouse gas that is 7,000 times more powerful than carbon dioxide at warming the Earth has been discovered by researchers in Toronto. The newly discovered gas, perfluorotributylamine (PFTBA), has been in use by the electrical industry since the mid-20th century. The chemical, that does not occur naturally, breaks all records for potential impacts on the climate, said the researchers at the University of Toronto's department of chemistry.

The study, published in the journal *Geophysical Research Letters*, found PFTBA was 7,100 times more powerful at warming the Earth over a 100-year time span than CO<sub>2</sub>.

Concentrations of PFTBA in the atmosphere are low – 0.18 parts per trillion in the Toronto area – compared to 400 parts per million for carbon dioxide. So PFTBA does not in any way displace the burning of fossil fuels such as oil and coal as the main drivers of climate change.

Dr Drew Shindell, a climatologist at NASA's Goddard Institute for Space Studies, said: "This is a warning to us that this gas could have a very very large impact on climate change – if there were a lot of it. Since there is not a lot of it now, we don't have to worry about it at present, but we have to make sure it doesn't grow and become a very large contributor to global warming."

He said a number of recent studies had drawn attention to other potential new greenhouse gases which, like PFTBA, pack a lot of warming potential in each molecule but are not very prevalent in the atmosphere. Such studies are a warning against increasing uses of such compounds without first understanding their impact on climate change, he added.

"From a climate change perspective, individually, PFTBA's atmospheric concentration does not significantly alert the phenomenon of climate change," Angela Hong, one of the co-authors said. "Still the biggest culprit is CO<sub>2</sub> from fossil fuel emissions." But PFTBA is long-lived. The Toronto researchers estimated PFTBA remains in the atmosphere for about 500 years, and unlike carbon dioxide, which is taken up by forests and oceans, there are no known natural "sinks" on Earth to absorb it.

"It is so much less than carbon dioxide, but the important thing is on a per molecule basis, it is very very effective in interacting with heat from the Earth," she said. "Individually each molecule is able to affect the climate potentially and because its lifetime is so long it also has a long-lasting effect."

Hong said the discovery of PFTBA and its warming potential raises questions about the climate impacts of other chemicals used in industrial processes. PFTBA has been in use since the mid-20th century for various applications in electrical equipment, such as transistors and capacitors. The researchers said it was unclear how widespread its use was today. It belongs to an entire class of chemicals used for industrial applications whose effects on the atmosphere remain

unknown. "PFTBA is just one example of an industrial chemical that is produced but there are no policies that control its production, use or emission," Hong said. "It is not being regulated by any type of climate policy."

#### **74. ExxonMobil Forecasts 35% Increase in Global Energy Demand By 2040**

More-efficient, energy-saving programs and technologies, increased use of natural gas and other less carbon-intensive fuels, and continued development of advanced exploration and production technologies will support a 35% increase in global energy production by 2040, ExxonMobil Corp. said in its latest annual outlook.

Governments also likely will establish policies that effectively put a price on carbon emissions, William M. Colton, ExxonMobil's vice-president of corporate strategic planning, said as the company released the forecast at the Center for Strategic and International Studies. "We're not saying there will be a carbon tax," he emphasized. "Although climate policies remain uncertain, we expect governments to try to limit emissions and assign a cost to carbon through their policies." Key highlights of the report include:

- Market forces and emerging public policies will continue to have an impact on energy-related carbon dioxide emissions. After decades of growth, worldwide energy-related CO2 emissions are expected to plateau around 2030 before gradually declining toward 2040 despite a steady rise in overall energy use.
- Oil and gas will continue to meet about 60% of all energy needs by 2040; liquid fuels—gasoline, diesel, jet fuel, and fuel oil—will remain the primary transportation choice because of their unique combination of affordability, availability, portability, and high energy density.
- Crude oil demand is expected to increase 25%, led by increased commercial transportation activity; it will be met through technology advances that enable deepwater production and development of oil sands and tight oil, it indicated.
- Natural gas will remain the fastest-growing major fuel source as demand increases by about 65%. "In North America, [its] abundance is leading to a resurgence of chemical as well as manufacturing industries," Colton said. "The world has over 200 years of gas supplies."
- Unconventional gas now accounts for 40% of the world's resource base, and is expected to represent 65% of global gas production growth to 2040, led by North America.
- Practically all of the projected demand growth will occur in developing nations attempting to industrialize as already industrialized countries emphasize efficiency. "The greatest source for the energy future is learning how to use it more efficiently," Colton said.

#### **75. Air Samples at Cruise Ship Docks Worldwide Find Dangerous Levels of Deadly Soot**

Air samples taken near idling cruise ships in New York and three European ports contained dangerously high levels of soot, according to test results released by Friends of the Earth US and the Nature and Biodiversity Conservation Union (NABU) of Germany. The groups said the tests

underscore the urgent need to install more modern air pollution reduction technology with filters that can all but eliminate deadly soot emissions.

At each port -- New York, Venice, Italy and Hamburg and Rostok, Germany -- samples taken by NABU with an ultrafine particle counter contained hundreds of thousands of microscopic ultrafine particles of soot per cubic centimeter of air. In New York, the sample contained 201,000 ultrafine particles of soot per cubic centimeter while the cruise ship Norwegian Gem was idling on November 15, 2013.

Direct comparison with U.S. Environmental Protection Agency soot standards is not possible, because EPA includes somewhat larger particles, counts their mass rather than their number and measures their concentration over time rather than at peak levels. But the latest research according to NABU indicates that the health hazards of ultrafine particle pollution, which are inhaled deep into the lungs, are the same as for other particles -- heart problems, respiratory illness and premature death.

By comparison with the measurements of hundreds of thousands of particles per cubic centimeter at the cruise ship docks, NABU measured only 5,000 particles per cm<sup>3</sup> in the center of Berlin.

"These extremely high measurements at the cruise ship docks are from the use of heavy fuel oil or bunker fuel and lack of pollution control technology," said Dr. Axel Friedrich, formerly an air quality expert with the German federal environmental agency, who led the testing. "Without particle filters, cruise ship engines must operate continuously at the dock to keep the lights on, releasing huge quantities of toxic gases that harm public health."

| Port                                      | Date           | Particulates per cm <sup>3</sup> of air |
|-------------------------------------------|----------------|-----------------------------------------|
| New York City (Manhattan cruise terminal) | Nov. 11, 2013  | ~201,000                                |
| Venice, Italy                             | Sept. 16, 2013 | ~200,000                                |
| Rostock, Germany                          | Aug. 17, 2013  | ~300,000+                               |
| Hamburg, Germany                          | July 13, 2013  | ~200,000                                |

NABU and Friends of the Earth are campaigning to get cruise lines worldwide to install state-of-the-art air pollution control technology which can reduce the amount of soot emitted by up to 99 percent. The campaign is focused on Carnival Corp. of Miami, the largest cruise company in the world, which operates 10 cruise lines, under various brand names, in the U.S. and Europe. Although some of Carnival's lines, such as AIDA Cruises of Germany, have installed such equipment, Carnival has not done so for all of its lines and ships.

## **76. Diesel Fumes Again Linked To Increased Lung Cancer Risk**

A new study has found diesel fumes could be responsible for as many as six per cent of all lung cancer deaths in the UK and USA according to a new study published in the Environmental Health Perspectives by an international team led by Roel Vermeulen of the University of Utrecht. Researchers found people occupationally exposed to diesel exhaust fumes account for 4.8 per cent of all lung cancer deaths in the UK and US. People who live on or near major roadways account for a further 1.3 per cent of lung cancer deaths in those countries. In total, the study claims 11,000 deaths may be attributable to diesel fumes.

Truckers and miners regularly exposed to diesel exhaust fumes are at particular risk of terminal lung cancer, with researchers estimating their risk could be up to 70 times higher than is considered acceptable by US health safety standards.

An estimated 21 people in every 10,000 who live alongside highways are also at risk of dying from the disease, compared with one in every 100,000 people who breathe air that meets air quality standards.

To produce the findings, the researchers used data from three previous studies about truckers and miners, and compared them to national death statistics in the UK and US.

“With millions of workers currently exposed to such levels, and likely higher levels in the past, the impact on the current and future lung cancer burden could be substantial,” the study said.

Last year, the World Health Organization concluded diesel exhaust fumes are definitely carcinogenic. Strict emissions regulations in Europe, where diesel cars are particularly popular, means diesel engines are becoming increasingly ‘clean’, in some instances emitting less air pollution than their petrol counterparts. The population of old, uncontrolled diesel engines has declined substantially over the past years in the United States, Europe, Japan and other countries that adopted stringent diesel emission standards. However, uncontrolled, high emission diesels are still common in non-road applications—such as in construction and farm machinery—as well as in many countries around the world that still have relaxed diesel emission requirements.

The study does acknowledge one key limitation of its findings: they do not take into account the smoker status of lung cancer patients.

## **77. EU, OECD Countries Lead Transition to Sustainable Energy, Index Shows**

Norway, New Zealand and France are leading the global transition to a more sustainable “energy architecture,” according to a new index from the World Economic Forum. The top 10 countries on the index, mostly members of the EU and Organization for Economic Cooperation and Development (OECD), used low-carbon energy sources for 41 percent of their energy supply, compared to a global average of 28 percent.

The Global Energy Architecture Performance Index for 2014<sup>14</sup> assessed 124 countries to determine the extent to which their energy systems add or detract from their economies, the environmental impacts of their energy supplies and consumption, and whether their energy supplies are secure, accessible and diversified.

The World Economic Forum (WEF) attributed high scores among EU countries—particularly Nordic ones—in part to their measures for carbon abatement, renewable energy and energy efficiency.

The top 10 countries were, in order, Norway, New Zealand, France, Sweden, Switzerland, Denmark, Colombia, Spain, Costa Rica and Latvia.

The U.S. ranked 37th on the index, performing well on energy security indicators but receiving a low score on the environmental sustainability of its energy system because of the predominance of coal in power generation and emissions from the transportation sector, the WEF said.

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<sup>14</sup> The World Economic Forum's “Global Energy Architecture Performance Index” for 2014 is available at <http://bit.ly/1c0kKjm>

Meanwhile, the index noted a struggle in many developing countries to meet citizens' basic energy needs and an over-dependence on energy imports. China, the world's largest energy consumer, has increased access to energy for its population but continues to depend on imports and produces high levels of emissions, the WEF said.

The WEF also examined potential pathways and challenges for regions and economic clusters to achieve a more sustainable energy architecture.

"The Index helps nations take stock of their energy transition challenges and address key barriers to success, such as market distorting subsidies, continued uncertainty around energy policy and funding for research and development of new energy sources and technologies," Arthur Hanna, managing director for the energy industry at Accenture, said in a statement on December 11<sup>th</sup>. Accenture collaborated with the WEF on the report.

"Our analysis concludes that there is no single way forward; each country must work with its own resources and constraints, making difficult choices and trade-offs," Hanna said.

Message

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**From:** Manners, Mary [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=EBDB1392504A4B71894970B1A7BB186C-MANNERS, MARY]  
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**Subject:** RIN QAP FRM preamble for workgroup review  
**Attachments:** RIN Fraud FRM 120913.docx

**Importance:** High

RIN QAP FRM Workgroup,

Attached is the RIN QAP FRM preamble for your review and comment. We'll be sending the regs mid-week.

Please let me know if you have any questions.

Thanks so much,  
Mary

Mary T. Manners, Deputy Director  
US EPA Office of Transportation and Air Quality  
Compliance Division  
2000 Traverwood  
Ann Arbor, MI 48105

Message

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**From:** Korotney, David [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=7B00E16E09654B94BC6146550CA87936-KOROTNEY, DAVID]  
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**Subject:** Draft reset rule for your review  
**Attachments:** Draft reset rule 8-31-18.docx

Attached, and in [this Sharepoint link](#), is a draft of the reset rule for the RFS program for your review. You can send me hand-written comments, add comment bubbles in the attached file, or use the Sharepoint file. My preference would be that you use the Sharepoint file.

Our current schedule is as follows:

Conclude briefing for Chris on Monday, Sept 4 at 4:00pm  
Brief Bill on Thursday, Sept 6 at 9:30am (also operates as a pre-brief for the Administrator)  
Package to Chris by Friday, Sept 7  
Package to Bill by Friday, Sept 14

IN THE UNITED STATES COURT OF APPEALS  
FOR THE TENTH CIRCUIT

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RENEWABLE FUELS ASSOCIATION, ET AL.,

Petitioners,

v.

UNITED STATES ENVIRONMENTAL  
PROTECTION AGENCY,

Respondent.

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HOLLYFRONTIER REFINING & MARKETING LLC,  
ET AL.,

Intervenors in support of Respondent.

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No. 18-9533

**NOTICE OF FILING OF CERTIFIED INDEX OF DOCUMENTS  
COMPRISING THE ADMINISTRATIVE RECORD**

Pursuant to Federal Rule of Appellate Procedure 17, the United States of America, on behalf of Respondent United States Environmental Protection Agency (EPA), hereby files the attached Certified Index of Documents Comprising the Administrative Record relating to Petitioners' challenge to three of EPA's final actions granting petitions for a one-year exemption from the requirements of the Clean Air Act Section 211(o), 42 U.S.C. § 7545(o), Renewable Fuel Standard program. The three actions are:

1. Grant of Request for Extension of Small Refinery Temporary Exemption Under the Renewable Fuel Standards Program for



HollyFrontier Cheyenne Refining LLC's Cheyenne, WY Refinery, 2016 RFS Compliance Year (May 4, 2017);

2. Grant of Request for Extension of Small Refinery Temporary Exemption Under the Renewable Fuel Standards Program for HollyFrontier Woods Cross Refining LLC's Woods Cross, Utah Refinery, 2016 RFS Compliance Year (December 20, 2017); and
3. Grant of Request for Extension of Small Refinery Temporary Exemption Under the Renewable Fuel Standard Program for Wynnewood Refining Company, LLC's Wynnewood, Oklahoma Refinery, 2017 RFS Compliance Year (March 23, 2018).

The entire Administrative Record will be maintained by EPA and will be made available to the Court or parties upon request.

Dated: August 9, 2018

Respectfully Submitted,

JEFFREY H. WOOD  
Acting Assistant Attorney General  
U.S. Department of Justice  
Environment & Natural Resources  
Division

s/ Patrick R. Jacobi  
PATRICK R. JACOBI  
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*Counsel for Respondent United States  
Environmental Protection Agency*

IN THE UNITED STATES COURT OF APPEALS  
FOR THE TENTH CIRCUIT

RENEWABLE FUELS ASSOCIATION, ET AL.,

Petitioners,

v.

UNITED STATES ENVIRONMENTAL  
PROTECTION AGENCY,

Respondent.

HOLLYFRONTIER REFINING & MARKETING LLC,  
ET AL.,

Intervenors in support of Respondent.

No. 18-9533

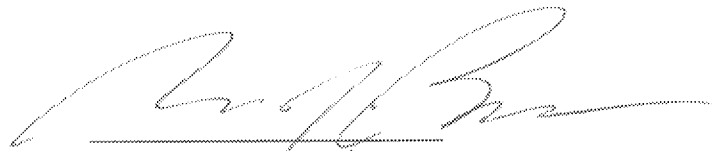
**CERTIFIED INDEX OF DOCUMENTS**  
**COMPRISING THE ADMINISTRATIVE RECORD**

I, Byron Bunker, am the Director of the Compliance Division, within the Office of Transportation and Air Quality, within the Office of Air and Radiation of the United States Environmental Protection Agency (EPA).

I certify to the best of my knowledge and belief that the attached index lists the documents constituting the administrative record for EPA's three final actions that are the subject of the petition for review in the above-captioned case. The three actions are:

1. Grant of Request for Extension of Small Refinery Temporary Exemption Under the Renewable Fuel Standards Program for HollyFrontier Cheyenne Refining LLC's Cheyenne, WY Refinery, 2016 RFS Compliance Year (May 4, 2017);
2. Grant of Request for Extension of Small Refinery Temporary Exemption Under the Renewable Fuel Standards Program for HollyFrontier Woods Cross Refining LLC's Woods Cross, Utah Refinery, 2016 RFS Compliance Year (December 20, 2017);
3. Grant of Request for Extension of Small Refinery Temporary Exemption Under the Renewable Fuel Standard Program for Wynnewood Refining Company, LLC's Wynnewood, Oklahoma Refinery, 2017 RFS Compliance Year (March 23, 2018).

In witness thereof, I have signed my name this 7 of August 2018 at Ann Arbor, Michigan.



Byron Bunker, Director  
Compliance Division  
Office of Transportation and Air Quality

**I.A Correspondence for the HollyFrontier Cheyenne, WY Refinery (Some documents contain material claimed as Confidential Business Information (CBI))**

| Doc. No. | Date of Doc. | From                                                                                                    | To  | Document Type/ Description                                                                                                                                                                                       | Contains Material Claimed as CBI? <sup>1</sup> |
|----------|--------------|---------------------------------------------------------------------------------------------------------|-----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|
| R-1      | 3/6/17       | Jeff Danielson, Vice President & Refinery Manager, HollyFrontier Cheyenne Refining, LLC (HollyFrontier) | EPA | HollyFrontier Refining & Marketing, LLC Petition for Small Refinery Exemption from the Renewable Fuel Standard for the 2016 compliance year for the HollyFrontier Cheyenne Refining LLC Refinery in Cheyenne, WY | Yes                                            |

<sup>1</sup> Documents marked with a “Yes” in this column are those for which the small refineries have asserted that the document contains confidential business information (CBI), or those that contain information that the small refineries assert is CBI. Under CAA section 114(c) and 40 CFR Part 2, Subpart B, Confidentiality of Business Information, EPA cannot publicly release information claimed as CBI unless it has determined that the information is not entitled to confidential treatment. 40 C.F.R. §§ 2.204, 2.205, 2.208. EPA has not yet made a CBI determination for these documents; therefore, EPA has not made these documents publicly available. Therefore, during this litigation, EPA will only publicly release the documents with the small refineries’ permission (40 C.F.R. § 2.209(1)), under Court order (40 C.F.R. § 2.209(d)), if the requirements under 40 C.F.R. § 2.301(g) are satisfied, or if EPA determines that the information is not entitled to confidential treatment. Regardless of any CBI claim, EPA reserves the right to provide record documents to the Court in camera in response to arguments the Petitioners may make.

| <b>Doc. No.</b> | <b>Date of Doc.</b> | <b>From</b>                     | <b>To</b>                                                                                           | <b>Document Type/ Description</b>                 | <b>Contains Material Claimed as CBI?<sup>1</sup></b> |
|-----------------|---------------------|---------------------------------|-----------------------------------------------------------------------------------------------------|---------------------------------------------------|------------------------------------------------------|
| R-2             | 3/10/17             | Chris McKenna, EPA              | Thomas White, U.S. Department of Energy (DOE), Barry Schaps, Stillwater Associates (DOE contractor) | Email with attachment (R-1)                       | Yes                                                  |
| R-3             | 3/10/17 7:00 AM     | Chris McKenna, EPA              | Steven Moyer, HollyFrontier                                                                         | Email                                             | No                                                   |
| R-4             | 3/10/17 11:43 AM    | Steven Moyer, HollyFrontier     | Chris McKenna, EPA                                                                                  | Email with attachments (R-1, R-14, R-15 and R-16) | Yes                                                  |
| R-5             | 3/10/17 10:54 AM    | Chris McKenna, EPA              | Steven Moyer, HollyFrontier                                                                         | Email                                             | No                                                   |
| R-6             | 3/10/17 12:00 PM    | Steven Moyer, HollyFrontier     | Chris McKenna, EPA                                                                                  | Email                                             | No                                                   |
| R-7             | 3/10/17 11:07 AM    | Chris McKenna, EPA              | Steven Moyer, HollyFrontier                                                                         | Email                                             | No                                                   |
| R-8             | 3/10/17 12:19 PM    | Steven Moyer, HollyFrontier     | Chris McKenna, EPA                                                                                  | Email                                             | No                                                   |
| R-9             | 3/10/17 12:22 PM    | Chris McKenna, EPA              | Steven Moyer, HollyFrontier                                                                         | Email                                             | No                                                   |
| R-10            | 3/16/17 11:33 AM    | Chris McKenna, EPA              | Steven Moyer, HollyFrontier; Jeff Nichols, Stancil & Company                                        | Email                                             | No                                                   |
| R-11            | 3/16/17 1:52 PM     | Jeff Nichols, Stancil & Company | Chris McKenna, EPA                                                                                  | Email                                             | No                                                   |

| Doc. No. | Date of Doc. | From                      | To                               | Document Type/ Description             | Contains Material Claimed as CBI? <sup>1</sup> |
|----------|--------------|---------------------------|----------------------------------|----------------------------------------|------------------------------------------------|
| R-12     | 3/31/17      | Thomas White, DOE         | Chris McKenna, EPA               | Email with attachments (R-18 and R-19) | Yes                                            |
| R-13     | 5/4/17       | Christopher Grundler, EPA | Jeffrey Danielson, HollyFrontier | Letter with attachment (R-20)          | Yes                                            |

**I.B Other Documents for the HollyFrontier Cheyenne, WY Refinery (Some documents contain material claimed as CBI)**

| Doc. No. | Date of Doc. or Date Received | Description                                                                                                                                                                                  | Contains Material Claimed as CBI? |
|----------|-------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|
| R-14     | 3/10/17                       | Cheyenne 2016 compliance cost spreadsheet.xls                                                                                                                                                | Yes                               |
| R-15     | 3/10/17                       | Cheyenne 2013-2016 Financial Data.xlsx                                                                                                                                                       | Yes                               |
| R-16     | 3/10/17                       | Cheyenne 2016 PI-588 survey.xlsx                                                                                                                                                             | Yes                               |
| R-17     |                               | 2015 HollyFrontier Corporation Form 10-K                                                                                                                                                     | No                                |
| R-18     | 3/31/17                       | DOE Scoring for HollyFrontier Cheyenne Refining LLC hardship 20170311.xlsx                                                                                                                   | Yes                               |
| R-19     | 3/31/17                       | DOE Application of the Small Refinery Scoring Matrix for the HollyFrontier Cheyenne Refining LLC, Cheyenne WY Refinery for Exemption as an Obligated Party under the Renewable Fuel Standard | Yes                               |
| R-20     | 5/4/17                        | Grant of Request for Extension of Small Refinery Temporary Exemption Under the Renewable Fuel Standards Program for HollyFrontier Cheyenne Refining LLC's Cheyenne, WY Refinery              | Yes                               |

**II.A Correspondence for the HollyFrontier Woods Cross, UT Refinery  
(Some documents contain material claimed as CBI)**

| <b>Doc. No.</b> | <b>Date of Doc.</b> | <b>From</b>                                                                                             | <b>To</b>                         | <b>Document Type/Description</b>                                                                                                                                                                                         | <b>Contains Material Claimed as CBI?</b> |
|-----------------|---------------------|---------------------------------------------------------------------------------------------------------|-----------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|
| R-21            | 9/12/17             | Steven Moyer, HollyFrontier                                                                             | Chris McKenna, EPA                | Email with attachments (R-22, R-29, R-30, R-31)                                                                                                                                                                          | Yes                                      |
| R-22            | 9/12/17             | Scott White, Vice President & Refinery Manager, HollyFrontier Woods Cross Refining, LLC (HollyFrontier) | EPA                               | HollyFrontier Refining & Marketing LLC Petition for Small Refinery Exemption from the Renewable Fuel Standard for the 2016 compliance year for the HollyFrontier Woods Cross Refining LLC refinery in West Bountiful, UT | Yes                                      |
| R-23            | 9/18/17             | Janet Cohen, EPA                                                                                        | Tom White, DOE                    | Email with attachments (R-22, R-29, R-30, R-31)                                                                                                                                                                          | Yes                                      |
| R-24            | 9/28/17<br>10:45 AM | Chris McKenna, EPA                                                                                      | Theresa L. Wheeler, HollyFrontier | Email                                                                                                                                                                                                                    | Yes                                      |
| R-25            | 9/28/17<br>11:17 AM | Chris McKenna, EPA                                                                                      | Theresa L. Wheeler, HollyFrontier | Email                                                                                                                                                                                                                    | Yes                                      |
| R-26            | 10/9/17             | Steven Moyer, HollyFrontier                                                                             | Chris McKenna, EPA                | Email with attachments (R-29, R-30, and R-31)                                                                                                                                                                            | Yes                                      |
| R-27            | 11/13/17<br>2:16 PM | Thomas White, DOE                                                                                       | Chris McKenna, EPA                | Email with attachments (R-32 and R-33)                                                                                                                                                                                   | Yes                                      |
| R-28            | 12/20/17            | Christopher Grundler, EPA                                                                               | Scott White, HollyFrontier        | Letter with attachment (R-34)                                                                                                                                                                                            | Yes                                      |



**II.B Other Documents for the HollyFrontier Woods Cross, UT Refinery  
(Some documents contain material claimed as CBI)**

| <b>Doc. No.</b> | <b>Date of Doc. or Date Received</b> | <b>Description</b>                                                                                                                                                                      | <b>Contains Material Claimed as CBI?</b> |
|-----------------|--------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|
| R-29            | 9/12/17                              | 2016 WX EPA Compliance Cost Spreadsheet                                                                                                                                                 | Yes                                      |
| R-30            | 9/12/17                              | Woods Cross 2014-2016 Financial Data                                                                                                                                                    | Yes                                      |
| R-31            | 9/12/17                              | 2016 Woods Cross – PI588 Survey Form                                                                                                                                                    | Yes                                      |
| R-32            | 11/13/17                             | DOE Scoring for Woods Cross RFS hardship 2016 111317.xlsx                                                                                                                               | Yes                                      |
| R-33            | 11/13/17                             | DOE Application of the Small Refinery Scoring Matrix for the HollyFrontier Woods Cross, Utah Refinery for Exemption as an Obligated Party under the Renewable Fuel Standard             | Yes                                      |
| R-34            | 12/20/17                             | Grant of Request for Extension of Small Refinery Temporary Exemption Under the Renewable Fuels Standard Program for HollyFrontier Woods Cross Refining LLC's Woods Cross, Utah Refinery | Yes                                      |

**III.A Correspondence for the Wynnewood, OK Refinery (Some documents contain material claimed as CBI)**

| <b>Doc. No.</b> | <b>Date of Doc.</b> | <b>From</b>                                                                                               | <b>To</b>                        | <b>Document Type/Description</b>                                                                                                                                            | <b>Contains Material Claimed as CBI?</b> |
|-----------------|---------------------|-----------------------------------------------------------------------------------------------------------|----------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|
| R-35            | 1/23/18, 7:17 PM    | John B. Lyman, Perkins Coie LLP                                                                           | Greg Piotrowski, EPA             | Email with attachment (R-36)                                                                                                                                                | Yes                                      |
| R-36            | 1/23/18             | John R. Walter, Executive Vice President and General Counsel, Wynnewood Refining Company, LLC (Wynnewood) | EPA                              | Petition for Hardship Relief Under EPA's Renewable Fuel Standard for Wynnewood Refining Company, LLC's refinery in Wynnewood, OK for the 2017 compliance year               | Yes                                      |
| R-37            | 1/24/18, 8:59 AM    | Greg Piotrowski, EPA                                                                                      | Tom White, DOE; Janet Cohen, EPA | Email with attachment (R-36)                                                                                                                                                | Yes                                      |
| R-38            | 1/30/18, 8:09 PM    | Brian Potts, Perkins Coie LLP                                                                             | Greg Piotrowski, EPA             | Email with attachment (R-39)                                                                                                                                                | Yes                                      |
| R-39            | 1/30/18             | John R. Walter, Wynnewood                                                                                 | EPA                              | Supplement to Petition for Hardship Relief Under EPA's Renewable Fuel Standard for Wynnewood Refining Company, LLC's refinery in Wynnewood, OK for the 2017 compliance year | Yes                                      |

| <b>Doc. No.</b> | <b>Date of Doc.</b> | <b>From</b>               | <b>To</b>                          | <b>Document Type/Description</b>       | <b>Contains Material Claimed as CBI?</b> |
|-----------------|---------------------|---------------------------|------------------------------------|----------------------------------------|------------------------------------------|
| R-40            | 1/31/18, 10:50 AM   | Greg Piotrowski, EPA      | Tom White, DOE; Janet Cohen, EPA   | Email with attachment (R-39)           | Yes                                      |
| R-41            | 2/27/18, 2:22 PM    | Thomas White, DOE         | Janet Cohen (and other staff), EPA | Email with attachments (R-43 and R-44) | Yes                                      |
| R-42            | 3/23/18             | Christopher Grundler, EPA | John R. Walter, Wynnewood          | Letter with attachment (R-45)          | Yes                                      |

**III.B Other Documents for the Wynnewood, OK Refinery (Some documents contain material claimed as CBI)**

| <b>Doc. No.</b> | <b>Date of Doc. or Date Received</b> | <b>Description</b>                                                                                                                                                                               | <b>Contains Material Claimed as CBI?</b> |
|-----------------|--------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|
| R-43            | 2/27/18                              | DOE Scoring for Wynnewood 20180222.xlsx                                                                                                                                                          | Yes                                      |
| R-44            | 2/27/18                              | DOE Application of the Small Refinery Scoring Matrix for the Wynnewood Refining Company LLC, Wynnewood, Oklahoma, refinery for Exemption as an Obligated Party under the Renewable Fuel Standard | Yes                                      |
| R-45            | 3/23/18                              | Grant of Request for Extension of Small Refinery Temporary Exemption Under the Renewable Fuel Standard Program for Wynnewood Refining Company, LLC's Wynnewood, Oklahoma Refinery                | Yes                                      |
| R-46            |                                      | Consolidated Appropriations Act, 2017 language                                                                                                                                                   | No                                       |

**IV. Documents That May Be Applicable to All Three Decisions (Some documents contain material claimed as CBI)**

| <b>Doc. No.</b> | <b>Date of Doc. or Date Received</b> | <b>Description</b>                                                                                                                                                                                                                                                                                                     | <b>Contains Material Claimed as CBI?</b> |
|-----------------|--------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|
| R-47            | 11/21/2013                           | Blank DOE Form PI-588                                                                                                                                                                                                                                                                                                  | No                                       |
| R-48            | 11/21/2013                           | Instructions for DOE Form PI-588                                                                                                                                                                                                                                                                                       | No                                       |
| R-49            |                                      | 2013-2015 DOE Margins                                                                                                                                                                                                                                                                                                  | No                                       |
| R-50            |                                      | 2014-2016 DOE Margins                                                                                                                                                                                                                                                                                                  | No                                       |
| R-51            |                                      | Consolidated Appropriations Act, 2016 language                                                                                                                                                                                                                                                                         | No                                       |
| R-52            | 5/14/15                              | Dallas Burkholder, EPA Office of Transportation and Air Quality, A Preliminary Assessment of RIN Market Dynamics, RIN Prices, and Their Effects (May 14, 2015), <i>available at</i> <a href="http://www.regulations.gov">www.regulations.gov</a> (docket number EPA-HQ-OAR-2015-0111-0062).                            | No                                       |
| R-53            | June 2016                            | U.S. Energy Information Administration, Capacity of Operable Petroleum Refineries by State and Individual Refinery as of January 1, 2016, Table 3, <i>at</i> <a href="http://www.eia.gov/petroleum/refinerycapacity/archive/2016/table3.pdf">http://www.eia.gov/petroleum/refinerycapacity/archive/2016/table3.pdf</a> | No                                       |
| R-54            | June 2017                            | U.S. Energy Information Administration, Capacity of Operable Petroleum Refineries by State and Individual Refinery as of January 1, 2017, Table 3, <i>at</i> <a href="http://www.eia.gov/petroleum/refinerycapacity/archive/2017/table3.pdf">http://www.eia.gov/petroleum/refinerycapacity/archive/2017/table3.pdf</a> | No                                       |
| R-55            | March 2011                           | DOE, Office of Policy and International Affairs, Small Refinery Exemption Study, An Investigation into Disproportionate Economic Hardship.                                                                                                                                                                             | No                                       |

| <b>Doc. No.</b> | <b>Date of Doc. or Date Received</b> | <b>Description</b>                                                                                                                                           | <b>Contains Material Claimed as CBI?</b> |
|-----------------|--------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|
| R-56            | May 2014                             | DOE, Office of Energy Policy and Systems Analysis, Addendum to the Small Refinery Exemption Study, An Investigation into Disproportionate Economic Hardship. | No                                       |
| R-57            | 12/6/16                              | EPA, Financial and Other Information to Be Submitted with 2016 RFS Small Refinery Hardship Exemption Requests.                                               | No                                       |

**CERTIFICATE OF DIGITAL SUBMISSION**

I hereby certify that with respect to the foregoing:

- (1) all required privacy redactions have been made per 10th Cir. R. 25.5;
- (2) if required to file additional hard copies, that the ECF submission is an exact copy of those documents; and
- (3) the digital submissions have been scanned for viruses with the most recent version of a commercial virus scanning program, Symantec Endpoint Protection, Version 4.18.1806.18062, last updated on August 9, 2018, and according to the program are free of viruses.

Dated: August 9, 2018

s/ Patrick R. Jacobi  
PATRICK R. JACOBI  
U.S. Department of Justice  
Environment & Natural Resources  
Division  
Environmental Defense Section  
999 18th Street  
Suite 370 – South Terrace  
Denver, CO 80202  
Tel: (303) 844-1348  
patrick.r.jacobi@usdoj.gov

**UNITED STATES COURT OF APPEALS  
FOR THE TENTH CIRCUIT**

|                                    |   |                 |
|------------------------------------|---|-----------------|
|                                    | ) |                 |
| Renewable Fuels Association,       | ) |                 |
| American Coalition for Ethanol,    | ) |                 |
| National Corn Growers Association, | ) |                 |
| and National Farmers Union,        | ) |                 |
|                                    | ) |                 |
| Petitioners,                       | ) |                 |
|                                    | ) |                 |
| v.                                 | ) | Case No.: _____ |
|                                    | ) |                 |
| U.S. Environmental Protection      | ) |                 |
| Agency,                            | ) |                 |
|                                    | ) |                 |
| Respondent.                        | ) |                 |
|                                    | ) |                 |

**PETITION FOR REVIEW**

Pursuant to Section 307(b)(1) of the Clean Air Act, 42 U.S.C. § 7607(b)(1), and Rule 15(a) of the Federal Rules of Appellate Procedure; the Renewable Fuels Association (“RFA”), American Coalition for Ethanol, National Corn Growers Association, and National Farmers Union (collectively “Renewable Fuels Ad Hoc Coalition,” “Petitioners,” or “Coalition”) hereby petition the United States Court of Appeals for the Tenth Circuit for review of the following final agency actions issued by the Environmental Protection Agency (“EPA”):

1. *Extension of Small Refinery Temporary Exemption Under the Renewable Fuels Standard Program for HollyFrontier Corp.'s Woods Cross, Utah Refinery (May 2017)*<sup>1</sup>;
2. *Extension of Small Refinery Temporary Exemption Under the Renewable Fuels Standard Program for HollyFrontier Corp.'s Cheyenne, Wyoming Refinery (December 2017)*<sup>2</sup>; and
3. *Extension of Small Refinery Temporary Exemption Under the Renewable Fuels Standard Program for Wynnewood Refining Company, LLC's Wynnewood, Oklahoma Refinery, a subsidiary of CVR Energy, Inc. and CVR Refining, LP (2018)*.<sup>3</sup>

Each of these small refinery exemption determinations is a final agency action subject to judicial review in this Court. *See Sinclair Wyo. Refining Co. v. EPA*, 874 F.3d 1159, 1163 (10th Cir. 2017); 42 U.S.C. § 7607(b)(1). Venue is proper in this circuit because, although each of the determinations challenged here is a “determination of nationwide scope or effect,” EPA did not publish any of them in the Federal Register or by any other means. *See Lion Oil Co. v. EPA*, 792

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<sup>1</sup> *See* Form 10-K, Annual Report Pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934, HollyFrontier Corporation (Feb. 21, 2018) at 76, attached hereto as Appendix A.

<sup>2</sup> *Id.*

<sup>3</sup> Although CVR Energy would neither confirm nor deny that it applied for or received a small refinery exemption, its first quarter 2018 financials indicate that it has received an economic hardship exemption. On April 26, 2018, CVR Energy acknowledged “a reduction in our estimated Renewable volume obligation” and reported that it expected its 2018 cost of compliance with the RFS to be \$120 million less than the amount it had estimated just two months prior. Jarrett Renshaw and Chris Prentice, CVR Q1 Income Doubles on Stronger Crack Spreads, Lower Biofuels Cost, Reuters, Apr. 26, 2018; Jarrett Renshaw and Chris Prentice, U.S. EPA Grants Biofuels Waiver to Billionaire Icahn's Oil Refinery-Sources, Reuters, Apr. 30, 2018; attached hereto as Appendix B.



F.3d 978, 980 (8th Cir. 2015) (finding that the § 7607(b)(1) provision for exclusive venue in the District of Columbia Circuit Court of Appeals for review of a locally or regionally applicable agency determination that is nonetheless “of nationwide scope or effect” applies only where such determination is “published”; transmitting final determination to petitioning small refinery did not “publish” the determination within the meaning of the statute). Indeed, EPA did not even provide public notice that it had received or had acted upon any requests for an extension of a small refinery exemption. Instead, the Coalition learned of these exemptions through recent media reports citing EPA sources. Because EPA never published the exemption letters or determinations, in the Federal Register or otherwise, and the Coalition thus does not have actual notice of EPA’s determinations within the meaning of the statute, the 60-day period for filing a petition for review under 42 U.S.C. § 7607(b)(1) did not begin to run and the time period set forth under 40 C.F.R. § 23.3 for unpublished determinations is not applicable to the Coalition.<sup>4</sup> However, out of an abundance of caution, the

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<sup>4</sup> EPA’s regulation setting a 14-day automatic “trigger” of the 60-day period for filing petitions for review in the case of unpublished decisions, 40 C.F.R. § 23.3, applies only to potential litigants having actual notice those decisions. EPA acknowledged in promulgating this rule that parties with no notice were “outside the scope” of the rulemaking. *See* 50 Fed. Reg. 7268, 7269 (Feb. 21, 1985) (“Most potential litigants interested in actions covered by the regulations will have actual notice of non-Federal Register documents. ... The rule issued today will have the beneficial effect of establishing a fixed trigger for commencing the

Coalition is filing this petition within 60 days of the first news article (April 3, 2018), attached hereto as Appendix C.

To date, EPA has refused to disclose information requested by journalists pursuant to the Freedom of Information Act (“FOIA”) about any specific small refinery exemptions. *See* Appendix C. EPA has likewise refused to disclose information requested by Petitioner RFA in response to RFA’s separate FOIA request to the agency. *See* Appendix D. The Coalition is also aware of an April 12, 2018 letter from a bipartisan group of United States Senators to EPA requesting additional information from EPA regarding small refinery exemptions. *See* Letter from Charles E. Grassley, United States Senator, to Scott Pruitt, EPA Administrator (Apr. 12, 2018), attached as Appendix E (available at <https://www.grassley.senate.gov/sites/default/files/Pruitt%20Small%20Refinery%20Letter%204.12.18.pdf> (last accessed May 29, 2018)). To Petitioners’ knowledge, however, EPA has yet to release this requested information as of the date of this filing.

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judicial review process [for litigants having actual notice]. The commenter’s concern—that someone entitled to seek judicial review, and who has no notice of the action, will later be barred from obtaining review by a preclusive judicial review provision—**addresses a matter not within the scope of this rulemaking.**”) (emphasis added). The Coalition, as potential litigants with no actual notice of the EPA’s determinations, is outside of the scope of the regulation is therefore inapplicable to Petitioners in this case.

In testimony before the House Energy and Commerce Committee on April 26, 2018, Administrator Pruitt neither confirmed nor denied that CVR Refining, a parent company of Wynnewood Refining Corp., LLC received a small refinery exemption. Transcript of House Energy and Commerce Committee, Subcommittee on Environment hearing on Fiscal Year 2019 Environmental Protection Agency Budget at ln. 4144-4156 (April 26, 2018), attached hereto as Appendix F.

Date: May 29, 2018

Respectfully submitted,

/s/ Matthew W. Morrison

Matthew W. Morrison

Cynthia Robertson

Bryan M. Stockton

PILLSBURY WINTHROP SHAW

PITTMAN LLP

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Washington, DC 20036

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*Counsel for Petitioners*

**UNITED STATES COURT OF APPEALS  
FOR THE TENTH CIRCUIT**

Renewable Fuels Association,  
American Coalition for Ethanol,  
National Corn Growers Association,  
and National Farmers Union,

Petitioners,

v.

Environmental Protection Agency,

Respondent.

Case No.:

## CERTIFICATE OF CORPORATE DISCLOSURE

Pursuant to Federal Rule of Appellate Procedure 26.1, Petitioners prove the following corporate disclosure statement:

The Renewable Fuels Association (“RFA”) is a non-profit trade association. Its members are ethanol producers and supporters of the ethanol industry. It operates for the purpose of promoting the general commercial, legislative, and other common interest of its members. The Renewable Fuels Association does not have a parent company, and no publicly held company has a 10% or greater ownership interest in it.

The American Coalition for Ethanol is a non-profit trade association. Its members include ethanol and biofuel facilities, agricultural producers, ethanol industry investors, and supporters of the ethanol industry. It operates for the purpose of promoting the general commercial, legislative, and other common interests of its members. It does not have a parent company, and no publicly held company has a 10% or greater ownership interest in it.

The National Corn Growers Association is a non-profit trade association. Its members are corn farmers and supporters of the agriculture and ethanol industries. It operates for the purpose of promoting the general commercial, legislative, and other common interests of its members. It does not have a parent company, and no publicly held company has a 10% or greater ownership interest in it.

The National Farmers Union is a non-profit trade association. Its members are farmers and supporters of the agriculture and ethanol industries. It operates for the purpose of promoting the general commercial, legislative, and other common interests of its members. It does not have a parent company, and no publicly held company has a 10% or greater ownership interest in it.

Date: May 29, 2018

Respectfully submitted,

/s/ Matthew W. Morrison  
Matthew W. Morrison  
Cynthia Robertson  
Bryan M. Stockton

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*Counsel for Petitioners*

## CERTIFICATE OF SERVICE

Pursuant to Federal Rules of Appellate Procedure 15(c) and 25, and 40 C.F.R. § 23.12(a), I hereby certify that on May 29, 2018, I have taken the following actions to ensure proper service of the foregoing Petition for Review and Corporate Disclosure Statement:

***Service on Respondent:*** I will cause five time-stamped copies of the foregoing Petition for Review and Corporate Disclosure Statement to be delivered by overnight mail on The Clerk of the Clerk of the Court of Appeals of the Tenth Circuit for Service on Respondent, through each of the following individuals:

The Hon. Scott Pruitt  
Administrator  
U.S. Environmental Protection Agency  
Ariel Rios Building  
1200 Pennsylvania Ave., NW  
Washington, DC 20460

Correspondence Control Unit  
Office of General Counsel (2311)  
U.S. Environmental Protection Agency  
1200 Pennsylvania Ave., NW  
Washington, DC 20460

Matthew Z. Leopold  
General Counsel  
U.S. Environmental Protection Agency  
1200 Pennsylvania Ave., NW  
Washington, DC 20460

The Hon. Jeff Sessions  
Attorney General of the United States

U.S. Department of Justice  
950 Pennsylvania Ave., NW  
Washington, DC 20530

Jeffrey H. Wood  
Acting Assistant Attorney General  
U.S. Department of Justice  
Law and Policy Section  
Environment and Natural Resources  
Division  
950 Pennsylvania Ave., N.W.  
Washington, D.C. 20530-0001

***Service on parties to the agency proceedings:*** I will also cause time-stamped copies of the foregoing Petition for Review and Corporate Disclosure Statement to be delivered by overnight mail upon each of the following individuals:

Wynnewood Refining Company, LLC  
c/o John R. Walter  
Executive Vice President, General Counsel and Secretary  
CVR Refining, LP  
10 E. Cambridge Circle, Suite 250  
Kansas City KS 66103

Scott White  
Vice President & Refinery Manager  
Holly Frontier Corporation  
Woods Cross Refinery  
1070 West 500 South  
West Bountiful, Utah 84087-1442

Jeff Danielson  
Vice President & Refinery Manager  
Holly Frontier Corporation  
Cheyenne Refinery  
300 Morrie Avenue



P.O. Box 1588  
Cheyenne, WY 82007

/s/ Matthew W. Morrison  
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## **CERTIFICATE OF DIGITAL SUBMISSION**

In accordance with the Court's CM/ECF User's Manual, I hereby certify that:

- 1) All required privacy redactions have been made per Tenth Circuit Rule 25.5;
- 2) Hard copies of this pleading that may be required to be submitted to the Court are exact copies of the ECF filing; and
- 3) The ECF submission has been scanned for viruses with the most recent version of a commercial virus scanning program, Symantec Endpoint Protection version 14.0.2422.0202 and, according to the program, is free of viruses.

Date: May 29, 2018

/s/ Matthew W. Morrison  
Matthew W. Morrison  
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## **Appendix A**

### **HollyFrontier 10-K, February 2018**

UNITED STATES  
SECURITIES AND EXCHANGE COMMISSION  
Washington, D.C. 20549

FORM 10-K

(Mark One)

☒ ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the fiscal year ended December 31, 2017  
OR

☐ TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the transition period from \_\_\_\_\_ to \_\_\_\_\_

Commission File Number 1-3876

**HOLLYFRONTIER CORPORATION**  
(Exact name of registrant as specified in its charter)

Delaware

(State or other jurisdiction of  
incorporation or organization)

75-1056913

(I.R.S. Employer Identification No.)

2828 N. Harwood, Suite 1300  
Dallas, Texas

(Address of principal executive offices)

75201-1507

(Zip Code)

(214) 871-3555

Registrant's telephone number, including area code

Securities registered pursuant to Section 12(b) of the Act:  
Common Stock, \$0.01 par value registered on the New York Stock Exchange.

Securities registered pursuant to 12(g) of the Act:  
None.

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes ☒ No ☐

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15 (d) of the Act. Yes ☐ No ☒

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15 (d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes ☒ No ☐

Indicate by check mark whether the registrant has submitted electronically and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files). Yes ☒ No ☐

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K (§229.405 of this chapter) is not contained herein, and will not be contained, to the best of registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K. ☐  
Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company, or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company," and "emerging growth company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer ☒ Accelerated filer ☐ Non-accelerated filer ☐ Smaller reporting company ☐  
Emerging growth company ☐

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act. ☐

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act). Yes ☐ No ☒

On June 30, 2017, the last business day of the registrant's most recently completed second fiscal quarter, the aggregate market value of the Common Stock, par value \$0.01 per share, held by non-affiliates of the registrant was approximately \$4.5 billion, based upon the closing price on the New York Stock Exchange on such date. (This is not deemed an admission that any person whose shares were not included in the computation of the amount set forth in the preceding sentence necessarily is an "affiliate" of the registrant.)

177,363,228 shares of Common Stock, par value \$0.01 per share, were outstanding on February 16, 2018.

**DOCUMENTS INCORPORATED BY REFERENCE**

Portions of the registrant's proxy statement for its annual meeting of stockholders to be held on May 9, 2018, which proxy statement will be filed with the Securities and Exchange Commission within 120 days after December 31, 2017, are incorporated by reference in Part III.

|                                              | Rack Back <sup>(1)</sup> | Rack Forward <sup>(2)</sup> | Eliminations <sup>(3)</sup> | Total Lubricants and Specialty Products |
|----------------------------------------------|--------------------------|-----------------------------|-----------------------------|-----------------------------------------|
| (In thousands)                               |                          |                             |                             |                                         |
| <b>Year Ended December 31, 2017</b>          |                          |                             |                             |                                         |
| Sales and other revenues                     | \$ 621,153               | \$ 1,415,842                | \$ (442,959)                | \$ 1,594,036                            |
| Cost of products sold                        | 504,782                  | 1,032,161                   | (442,959)                   | 1,093,984                               |
| Operating expenses                           | 95,303                   | 127,158                     | —                           | 222,461                                 |
| Selling, general and administrative expenses | 27,618                   | 77,494                      | —                           | 105,112                                 |
| Depreciation and amortization                | 23,471                   | 8,423                       | —                           | 31,894                                  |
| Income (loss) from operations                | \$ (30,021)              | \$ 171,812                  | \$ —                        | \$ 141,791                              |
| <b>Year Ended December 31, 2016</b>          |                          |                             |                             |                                         |
| Sales and other revenues                     | \$ —                     | \$ 464,359                  | \$ —                        | \$ 464,359                              |
| Cost of products sold                        | —                        | 377,136                     | —                           | 377,136                                 |
| Operating expenses                           | —                        | 13,867                      | —                           | 13,867                                  |
| Selling, general and administrative expenses | —                        | 2,899                       | —                           | 2,899                                   |
| Depreciation and amortization                | —                        | 620                         | —                           | 620                                     |
| Income from operations                       | \$ —                     | \$ 73,927                   | \$ —                        | \$ 73,927                               |
| <b>Year Ended December 31, 2015</b>          |                          |                             |                             |                                         |
| Sales and other revenues                     | \$ —                     | \$ 493,282                  | \$ —                        | \$ 493,282                              |
| Cost of products sold                        | —                        | 415,796                     | —                           | 415,796                                 |
| Operating expenses                           | —                        | 14,042                      | —                           | 14,042                                  |
| Selling, general and administrative expenses | —                        | 2,615                       | —                           | 2,615                                   |
| Depreciation and amortization                | —                        | 254                         | —                           | 254                                     |
| Income from operations                       | \$ —                     | \$ 60,575                   | \$ —                        | \$ 60,575                               |

- (1) Rack back consists of our PCLI base oil production activities, by-product sales to third parties and intra-segment base oil sales to rack forward.
- (2) Rack forward activities include the purchase of base oils from rack back and the blending, packaging, marketing and distribution and sales of finished lubricants and specialty products to third parties.
- (3) Intra-segment sales of rack back produced base oils to rack forward are eliminated under the “Eliminations” column.

#### Results of Operations – Year Ended December 31, 2017 Compared to Year Ended December 31, 2016

##### Summary

Net income attributable to HollyFrontier stockholders for the year ended December 31, 2017 was \$805.4 million (\$4.54 per basic and \$4.52 per diluted share), a \$1,065.8 million increase compared to a net loss attributable to HollyFrontier stockholders of \$260.5 million (\$1.48 per basic and diluted share) for the year ended December 31, 2016. Net income increased due principally to an increase in refining segment sales volumes and gross refining margins and the inclusion of earnings attributable to the operations of our recently acquired Petro-Canada Lubricants business. Additionally, we recorded long-lived asset impairment charges totaling \$23.2 million for the year ended December 31, 2017 compared to goodwill and long-lived asset impairment charges totaling \$654.1 million for the year ended December 31, 2016. For the year ended December 31, 2017, lower of cost or market inventory reserve adjustments increased pre-tax earnings by \$108.7 million compared to \$291.9 million for the year ended December 31, 2016. Refinery gross margins for the year ended December 31, 2017 increased to \$11.56 per barrel sold from \$8.16 for the year ended December 31, 2016. During 2017, our Cheyenne Refinery and Woods Cross Refinery were each granted a one-year small refinery exemption from the EPA at which time we recorded a \$30.5 million and \$27.3 million, respectively, decrease to our cost of products sold, reflecting the reinstatement of RINs previously expensed in 2016. The Tax Cut and Jobs Act was enacted on December 22, 2017, resulting in a tax benefit of \$307.1 million for the year ended December 31, 2017.

***Sales and Other Revenues***

Sales and other revenues increased 35% from \$10,535.7 million for the year ended December 31, 2016 to \$14,251.3 million for the year ended December 31, 2017 due to a year-over-year increase in sales prices and higher product sales volumes. Sales and other revenues for the years ended December 31, 2017 and 2016 include \$77.2 million and \$68.9 million, respectively, in HEP revenues attributable to pipeline and transportation services provided to unaffiliated parties. Additionally, the operations of our Petro-Canada Lubricants business contributed \$1,125.3 million in sales and other revenues to our Lubricants and Specialty Products segment for the year ended December 31, 2017.

***Cost of Products Sold***

Total cost of products sold increased 34% from \$8,474.0 million for the year ended December 31, 2016 to \$11,359.1 million for the year ended December 31, 2017, due principally to higher crude oil costs and higher sales volumes of products. Additionally, cost of products sold reflects a \$108.7 million benefit that is attributable to a decrease in the lower of cost or market reserve for the year ended December 31, 2017, a \$183.3 million decrease compared to \$291.9 million for the same period of last year. The reserve at December 31, 2017 is based on market conditions and prices at that time. Additionally, we recorded a \$30.5 million and \$27.3 million RINs cost reduction during 2017 as a result of the reinstatement of previously utilized RINs following our Cheyenne Refinery and Woods Cross Refinery small refinery exemptions, respectively.

***Gross Refinery Margins***

Gross refinery margin per barrel sold increased 42% from \$8.16 for the year ended December 31, 2016 to \$11.56 for the year ended December 31, 2017. This was due to the effects of an increase in the average per barrel sold sales price, partially offset by increased crude oil and feedstock prices during the current year. Gross refinery margin does not include the non-cash effects of lower of cost or market inventory valuation adjustments, goodwill and asset impairment charges or depreciation and amortization. See "Reconciliations to Amounts Reported Under Generally Accepted Accounting Principles" following Item 7A of Part II of this Form 10-K for a reconciliation to the income statement of sale prices of products sold and cost of products purchased.

***Operating Expenses***

Operating expenses, exclusive of depreciation and amortization, increased 27% from \$1,018.8 million for the year ended December 31, 2016 to \$1,294.2 million for the year ended December 31, 2017 due principally to \$208.7 million in costs attributable to the operations of our Petro-Canada Lubricants business and higher purchased fuel costs compared to 2016. For the years ended December 31, 2017 and 2016, operating expenses include \$137.6 million and \$90.4 million, respectively, in costs attributable to HEP operations.

***Selling, General and Administrative Expenses***

Selling, general and administrative expenses increased 111% from \$125.6 million for the year ended December 31, 2016 to \$264.9 million for the year ended December 31, 2017, due principally to \$127.7 million in costs attributable to the operations of our Petro-Canada Lubricants business and related acquisition and integration costs. Incremental direct acquisition and integration costs of our Petro-Canada Lubricants business totaled \$27.9 million and \$13.4 million for the years ended December 31, 2017 and 2016, respectively. For the years ended December 31, 2017 and 2016, selling, general and administrative expenses include \$11.9 million and \$10.1 million, respectively, in costs attributable to HEP operations.

***Depreciation and Amortization Expenses***

Depreciation and amortization increased 13% from \$363.0 million for the year ended December 31, 2016 to \$409.9 million for the year ended December 31, 2017. This increase was due principally to \$30.9 million in depreciation and amortization expenses attributable to the operations of our Petro-Canada Lubricants business and capitalized improvement projects and capitalized refinery turnaround costs. For the years ended December 31, 2017 and 2016, depreciation and amortization expenses include \$77.7 million and \$68.8 million, respectively, in costs attributable to HEP operations.

***Goodwill and Asset Impairment***

During the year ended December 31, 2017, we recorded a \$19.2 million long-lived asset impairment charge resulting from management's plan to cease further expansion of our Woods Cross Refinery to add lubricants production compared to goodwill and long-lived asset impairment charges of \$309.3 million and \$344.8 million, respectively, for the year ended December 31, 2016 that related to our Cheyenne Refinery. See Note 10 "Goodwill" in the Notes to Consolidated Financial Statements for additional information on these impairments.

***Interest Income***

Interest income for the year ended December 31, 2017 was \$3.7 million compared to \$2.5 million for the year ended December 31, 2016. This increase was due to higher interest rates received on cash balances during 2017.

**HOLLYFRONTIER CORPORATION**  
**NOTES TO CONSOLIDATED FINANCIAL STATEMENTS**  
**Continued**

**NOTE 8: Inventories**

Inventory consists of the following components:

|                                                            | December 31,        |                     |
|------------------------------------------------------------|---------------------|---------------------|
|                                                            | 2017                | 2016                |
|                                                            | (In thousands)      |                     |
| Crude oil                                                  | \$ 581,417          | \$ 549,886          |
| Other raw materials and unfinished products <sup>(1)</sup> | 396,618             | 287,561             |
| Finished products <sup>(2)</sup>                           | 655,336             | 465,432             |
| Lower of cost or market reserve                            | (223,833)           | (332,518)           |
| Process chemicals <sup>(3)</sup>                           | 24,792              | 2,767               |
| Repairs and maintenance supplies and other <sup>(4)</sup>  | 195,762             | 162,548             |
| Total inventory                                            | <u>\$ 1,630,092</u> | <u>\$ 1,135,676</u> |

(1) Other raw materials and unfinished products include feedstocks and blendstocks, other than crude.

(2) Finished products include gasolines, jet fuels, diesels, lubricants, asphalts, LPG's and residual fuels.

(3) Process chemicals include additives and other chemicals.

(4) Includes RINs

We acquired \$214.9 million of other raw materials, unfinished and finished products and repair and maintenance supplies in connection with our February 1, 2017 acquisition of PCLL. We value these inventories at the lower of FIFO cost or net realizable value.

Inventories which are valued at the lower of LIFO cost or market reflect a valuation reserve of \$223.8 million and \$332.5 million at December 31, 2017 and 2016, respectively. The December 31, 2016 market reserve of \$332.5 million was reversed due to the sale of inventory quantities that gave rise to the 2016 reserve. A new market reserve of \$223.8 million was established as of December 31, 2017 based on market conditions and prices at that time. The effect of the change in the lower of cost or market reserve was a decrease to cost of goods sold of \$108.7 million and \$291.9 million for the years ended December 31, 2017 and 2016, respectively, and an increase of \$227.0 million for the year ended December 31, 2015.

At December 31, 2017, 2016 and 2015, the LIFO value of inventory, net of the lower of cost or market reserve, was equal to current costs.

In May 2017, the EPA granted the Cheyenne Refinery a one-year small refinery exemption from the Renewable Fuel Standard ("RFS") program requirements for the 2016 calendar year. As a result, the Cheyenne Refinery's gasoline and diesel production are not subject to the percentage of production that must satisfy a Renewable Volume Obligation ("RVO") for 2016. In September 2017, the EPA reinstated the RINs previously submitted to meet our Cheyenne Refinery's 2016 RVO. The cost of the RINs used earlier to satisfy the Cheyenne Refinery's 2016 RVO of \$30.5 million was charged to cost of products sold in 2016. In the second quarter of 2017, we increased our inventory of RINs and reduced our cost of products sold by this amount, representing the cost of the RINs that were reinstated as a result of the RFS exemption received by the Cheyenne Refinery.

Additionally, in December 2017, the EPA granted the Woods Cross Refinery a one-year small refinery exemption from the RFS program requirements for the 2016 calendar year. In the fourth quarter of 2017, we increased our inventory of RINs and reduced our cost of products sold in the amount of \$27.3 million, representing the cost of the RINs to be reinstated as a result of the RFS exemption received by the Woods Cross Refinery. These RINs were reinstated in January 2018.

## **Appendix B**

**April 26, 2018 and April 30, 2018 Reuters articles**



[Detained In Myanmar](#)[Energy & Environment](#)[Brexit](#)[North Korea](#)[Charged: The Future of Autos](#)

## MARKET NEWS

APRIL 26, 2018 / 6:41 PM / A MONTH AGO

## CVR Q1 income doubles on stronger crack spreads, lower biofuels cost

Reuters Staff



NEW YORK, April 26 (Reuters) - CVR Energy Inc refining unit's income more than doubled in the first quarter, versus the prior-year period, the company said on Thursday, citing stronger crack spreads and lower biofuels compliance costs.

\*CVR Refining reported net income of \$147 million for the first quarter, up from \$67 million in the same period of 2017.

\* "The quarter's fiscal performance was driven by stronger crack spreads, hedging gains, a reduction to our estimated Renewable Volume Obligation and lower" prices of biofuels credits," said Dave Lamp, CVR's chief executive officer.

\* When asked on an investor call if the company received a small refinery hardship exemption for its Wynnewood, Oklahoma, refinery, Lamp said: "(T)he request for or granting of a waiver, something we consider very confidential and we will not discuss that."

\* oil refiners and other fuel companies are required to blend biofuels such as ethanol with their petroleum-based products each year, though refiners with capacity below 75,000 barrels per day can apply for a waiver of those obligations.

\* The Environmental Protection Agency has said it has given 25 such exemptions for 2017.

\* CVR Refining said on Thursday that it turned a \$23 million profit on Renewable Identification Number (RIN) credits in the first quarter, nearly quadrupling the \$6 million it earned in the market for biofuels credits in the same period of 2017.

\* The company said it now expects its cost of complying with the Renewable Fuel Standard will fall to \$80 million this year from roughly \$249 million in 2017. The \$80 million projection is

also markedly below the \$200 million in 2018 RIN costs that CVR estimated for this year when it released its fourth-quarter 2017 earnings in February.

(Reporting by Jarrett Renshaw and Chris Prentice  
Editing by Leslie Adler)

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SUPREME COURT

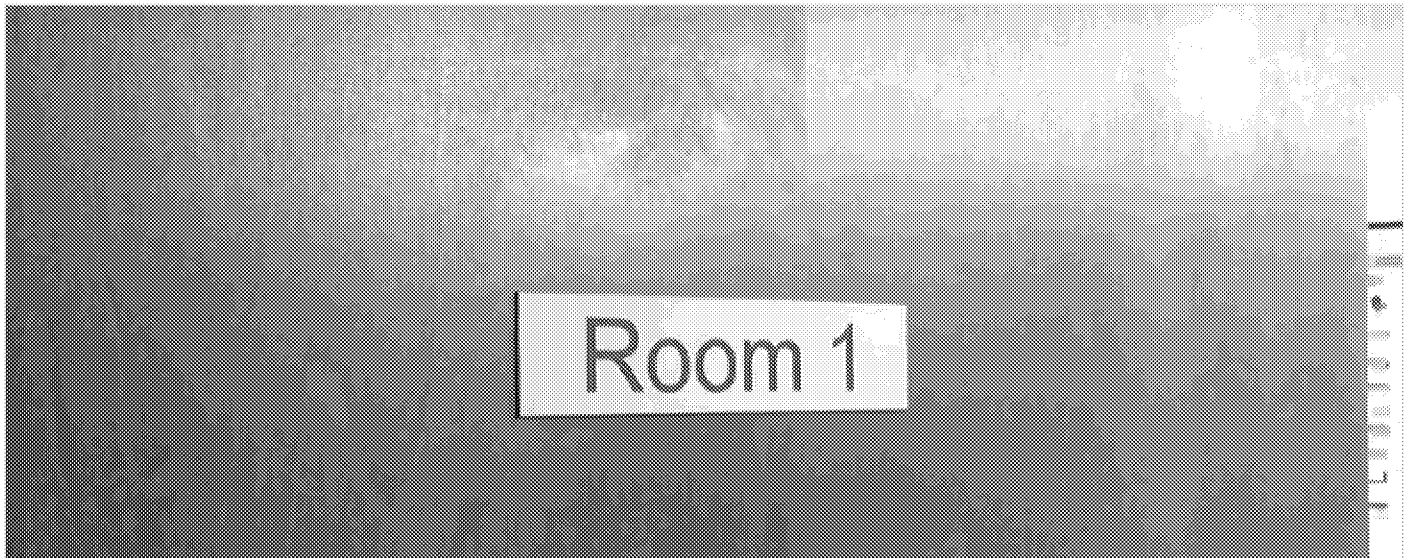
MAY 29, 2018 / 9:43 AM / UPDATED 21 MINUTES AGO

## Supreme Court rejects challenge to strict Arkansas abortion law

Lawrence Hurley



WASHINGTON (Reuters) - In a setback to abortion rights advocates, the U.S. Supreme Court on Tuesday paved the way for Republican-backed restrictions on medication-induced abortions to take effect in Arkansas that could lead to the shuttering of two of the state's three abortion clinics.





Detained In Myanmar

Energy &amp; Environment

Brexit

North Korea

Charged: The Future of Autos

## BUSINESS NEWS

APRIL 30, 2018 / 7:03 AM / 10 DAYS AGO

## Exclusive: U.S. EPA grants biofuels waiver to billionaire Icahn's oil refinery - sources

Jarrett Renshaw, Chris Prentice



NEW YORK (Reuters) - The U.S. Environmental Protection Agency has granted a financial hardship waiver to an oil refinery owned by billionaire Carl Icahn, a former adviser to President Donald Trump, exempting the Oklahoma facility from requirements under a federal biofuels law, according to two industry sources briefed on the matter.



The waiver enables Icahn's CVR Energy Inc (CVI.N) to avoid tens of millions of dollars in costs related to the U.S. Renewable Fuel Standard (RFS) program. The regulation is meant to cut air pollution, reduce petroleum imports and support corn farmers by requiring refiners to mix billions of gallons of biofuels into the nation's gasoline and diesel each year.

The Small Refiners Coalition, which represents companies that operate small refining facilities, said the EPA is required by law to help small refineries struggling with these regulations and that such exemptions are crucial to their financial well-being. It applauded EPA Administrator Scott Pruitt for protecting small refineries, regardless of ownership, from the RFS requirements.

But the exemption for CVR's Wynnewood, Oklahoma plant prompted criticism from a corn state lawmaker and the powerful corn lobby, which has already accused Trump's EPA of overusing the hardship waiver program in a way that hurts demand for ethanol.

"Hundreds of millions - and in some cases billions - of dollars in profits isn't my definition of 'hardship,'" Iowa Republican Senator Chuck Grassley said in statement condemning the CVR waiver. "President Trump promised to support home-grown biofuels, and Administrator Pruitt is breaking that promise."

"This one's going to be hard for Pruitt to explain," Brooke Coleman, head of the Advanced Biofuels Business Council industry group, said in an email.

EPA spokeswoman Liz Bowman said that the agency does not comment on specific refineries. "But, what I can tell you is that the criteria used to grant waivers has not changed since previous administrations," Bowman added.

CVR spokeswoman Brandee Stephens declined to comment regarding the waiver. Efforts to reach Icahn and his attorney for comment were not successful.

An early supporter of Trump's 2016 presidential run and a key supporter on Wall Street, Icahn had met with Pruitt when Pruitt was being vetted in late 2016 for the EPA administrator job, according to news reports at the time.

Icahn stepped down from his position as special regulatory adviser to the Republican president last August after lawmakers cited potential ethical problems in his dual role as an adviser and an investor.

Icahn is currently under investigation by the U.S. Justice Department for his role in influencing biofuels policy while serving as Trump's adviser. Some U.S. lawmakers have expressed concern that Icahn may have used his presidential access to benefit his investments, a charge Icahn has rejected.

The EPA has said it has granted more than two dozen waivers for 2017 but has declined to name the recipients.

Under Trump's Democratic predecessor Barack Obama, the EPA granted about eight waivers annually.

Records show CVR had been denied on at least one occasion. The Small Refiners Coalition said the Obama administration had wrongly denied waivers to firms like CVR.

Reuters has reported that Andeavor (ANDV.N), one of America's biggest refining companies, which reported about \$1.5 billion in net profit last year, was among the other companies that have received hardship waivers from Trump's EPA for its small refineries.

Slideshow (2 Images)

## BLENDING CREDITS

To prove RFS compliance, refiners must earn or purchase tradable blending credits - awarded by the government for each blended gallon of fuel - and hand them in to the EPA yearly.

The EPA has the authority to exempt small refineries of under 75,000 barrels per day from the requirement under the hardship waiver program if they can prove that compliance would cause them “disproportionate financial hardship.”

With the exemption, CVR would not have to turn over the credits related to the Wynnewood facility for 2017, according to the two sources, who spoke on condition of anonymity. The waiver was granted in recent months but the sources did not say precisely when.

The Trump administration has encouraged small refiners to apply for the hardship waivers. A surge of applications has come to the EPA since a 2017 court ruling that the agency had used too narrow a definition of “financial hardship” under Obama.

The waivers have the potential to save companies tens of millions of dollars, by allowing them to avoid blending or paying for credits on the open market and by permitting them to sell any credits they have on hand to others.

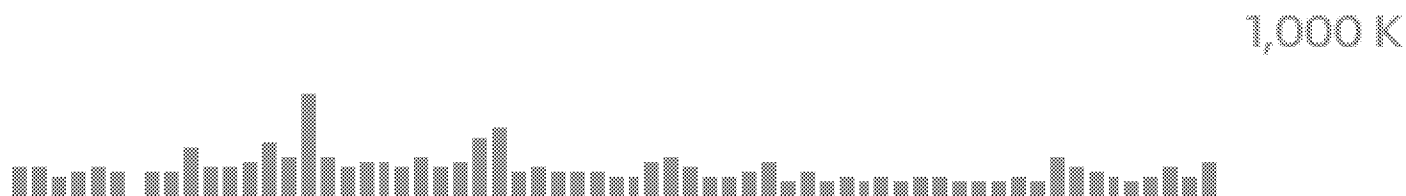
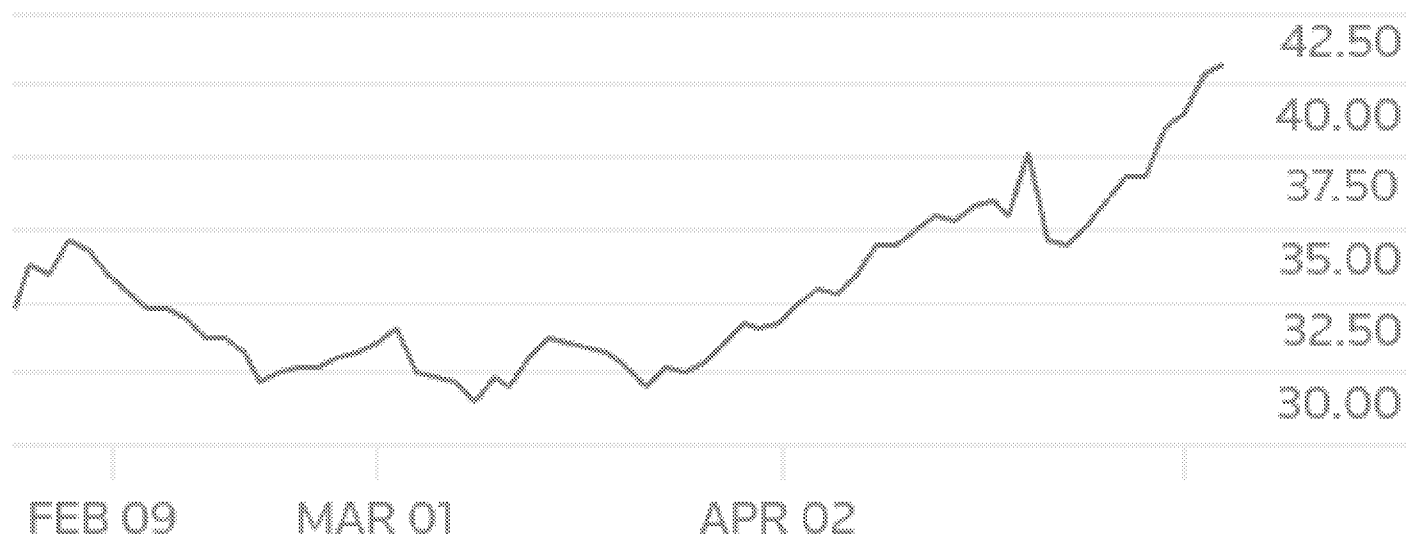
CVR has reported a \$23 million profit in the biofuels credit market in the first quarter of 2018 due to what it called a lower RFS obligation, an unusual return for a refiner that has no biofuel blending facilities.

**CVR Energy Inc**

CVI.N NEW YORK STOCK EXCHANGE

40.43

+1.48 (+3.80%)



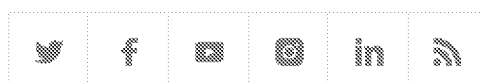
CVI.N ANDV.N

The company also said it expects its cost of complying with the RFS requirements to fall to \$80 million for the entirety of 2018 from a previous estimate of \$200 million, and from roughly \$249 million in 2017.

Reporting by Jarrett Renshaw and Chris Prentice; Editing by Richard Valdmanis, Will Dunham and Jonathan Oatis

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## **Appendix C**

### **April 3, 2018 Reuters article**

[Detained In Myanmar](#)[Energy & Environment](#)[Brexit](#)[North Korea](#)[Charged: The Future of Autos](#)

## BUSINESS NEWS

APRIL 3, 2018 / 12:03 PM / 2 MONTHS AGO

## Exclusive: EPA gives giant refiner a 'hardship' waiver from regulation

Jarrett Renshaw, Chris Prentice



NEW YORK (Reuters) - The Environmental Protection Agency has exempted one of the nation's largest oil refining companies, Andeavor (ANDV.N), from complying with U.S. biofuels regulations - a waiver historically reserved for tiny operations in danger of going belly up, two sources familiar with the matter told Reuters.

Appellate Case: 18-9533 Document: 01019999253 Date Filed: 05/29/2018 Page: 17  
FILE PHOTO: U.S. President Donald Trump delivers remarks on his proposed changes to the tax code during an event with energy workers at the Andeavor Refinery in Mandan, North Dakota, U.S. September 6, 2017.  
REUTERS/Jonathan Ernst/File Photo

The exemption, which applies to the three smallest of Andeavor's ten refineries, marks the first evidence of the EPA freeing a highly profitable multi-billion dollar company from the costly mandates of the U.S. Renewable Fuel Standard. The law requires refiners to blend biofuels such as ethanol into gasoline or purchase credits from those who do such blending.

The decision, which has not been previously reported, raises the question of whether other big and profitable oil firms with small refineries - such as Exxon Mobil Corp (XOM), Chevron Corp (CVX.N) and Phillips 66 (PSX.N) - also have or could receive the waivers, which are granted by the EPA in secret.

Such waivers were designed for refineries producing less than 75,000 barrels per day that can demonstrate that they suffer a "disproportionate economic hardship" from the costs of RFS compliance.

Andeavor posted net profits of about \$1.5 billion last year.

The EPA exemption, granted about a month ago, could reduce Andeavor's regulatory costs by more than \$50 million this year, based on the number of biofuels credits that two brokers say the refiner recently sold into the market, along with previous disclosures by firms that own refineries of a similar size.

#### RELATED COVERAGE

U.S. biofuel credits fall on refiner exemption report: traders

Biofuels credit prices tied to ethanol dropped by 6 cents, to 38 cents each, after Reuters

reported Andeavor's exemption, traders said. Andeavor shares jumped by more than 1 percent on the news, hitting a session high of \$102.78.

Appellate Case: 18-9533 Document: 01019999253 Date Filed: 05/29/2018 Page: 18  
Bob Dinneen, head of the Renewable Fuels Association, reacted to the report by calling the exemption an “outrageous abuse” of the law.

“Providing a small refiner waiver to a company like Andeavor is laughable and abandons the commitment of President Trump to protect the RFS,” he said in a statement.

U.S. Senator Chuck Grassley, a Republican who represents Iowa - the nation’s largest corn-growing state - and a staunch defender of the biofuels program, raised questions over the legality of the exemption.

Giving Andeavor “a free pass when other companies are required to follow the law of the land isn’t just unfair, it may be illegal,” Grassley said late Tuesday in a statement to Reuters. “It would also amount to a massive government handout to a big corporation that made billions in profits just last year.”

The exemption releases the firm of its obligation to provide the EPA with biofuels credits proving compliance at the three refineries - two located in North Dakota and one in Utah - for the year 2016, which would have come due this year, the sources said. Andeavor is also asking EPA for a waiver for its 2017 obligations for the same refineries, but has not yet received a decision, the sources said.

Andeavor spokeswoman Destin Singleton declined to comment. EPA spokeswoman Liz Bowman did not immediately comment in response to Reuters inquiries on Monday and Tuesday.

As a matter of policy, the agency refuses to release any information on the waivers, or to name their recipients, citing concerns over disclosing private business information. The EPA denied a Freedom of Information Act request from Reuters seeking information on companies receiving the waivers.

Exxon Mobil, Chevron and Phillips 66 also own refineries small enough to meet the barrel-per-day standard, as does billionaire investor and Trump ally Carl Icahn - whose efforts last year to overhaul the biofuels program drew scrutiny from federal investigators.

Appellate Case: 18-9533 Document: 01019999253 Date Filed: 05/29/2018 Page: 19  
Icahn, majority owner of refiner CVR Energy (CVI.N), had served as an advisor to Trump on regulatory issues during his push to reform biofuels regulations early last year, but he resigned amid allegations that the role gave him a conflict of interest.

Spokespeople for all four companies declined to comment on whether they had applied for or received any exemptions.

The lucrative waivers are typically only reported if a publicly-traded firm considers them to be material to their financial or operational performance, in which case they must disclose the information through Securities and Exchange Commission filings.

The RFS has long been a lightning rod of conflict between the corn lobby, which supports the policy as an engine for demand, and refiners who say it costs them a fortune.

The White House has sought to broker a deal between two of its key political constituencies in a series of meetings, but the effort has failed to yield policy changes acceptable to both sides.

Ethanol industry advocates argue exemptions for refiners undermine the intent of the law, originally designed to reduce greenhouse gas emissions, reduce dependence on foreign oil and boost farm economies.

While the EPA's motives in providing hardship waivers are unclear, the exemptions are one of the tools at the administration's disposal to ease financial pressure on refiners without undertaking a reform of the RFS policy.

FILE PHOTO: U.S. President Donald Trump arrives in his motorcade to deliver remarks on his proposed changes to the tax code during an event with energy workers at the Andeavor Refinery in Mandan, North Dakota, U.S. September 6, 2017. REUTERS/Jonathan Ernst/File Photo

EPA chief Scott Pruitt, appointed by Trump, has repeatedly said the RFS is too costly to oil refiners and should be overhauled. But Trump's Secretary of Agriculture, Sonny Perdue, told an agriculture conference in February that Trump "stands with corn farmers, biofuels farmers and the RFS," according to a recording heard by Reuters.

White House spokeswoman Kelly Love did not respond to a question about whether the administration was expanding the use of the RFS waivers to help refiners. Bowman, of the EPA, also did not comment on the question.

## LAWSUIT OVER 'HARDSHIP' STANDARD

Andeavor's waiver follows a successful lawsuit by another refiner, Sinclair Oil, last year challenging the strict standard the EPA has used under past administrations for determining financial hardship.

"The EPA's interpretation takes the statutory language too far," wrote Chief Judge Timothy Tymkovich of the 10th Circuit Court of Appeals in Denver. "A 'hardship' is something that makes one's life hard or difficult - not just something that makes continued existence impossible."

The lawsuit - along with a perception that the Trump administration might be more sympathetic to refiners - has sparked a big increase in applications from refining firms for he exemptions this year. More than 30 refineries have sought the waivers, according to sources familiar with the matter.

## Andeavor

ANDV.N NEW YORK STOCK EXCHANGE

142.77

+1.58 (+1.12%)



ANDV.N XOM CVX.N PSX.N CVI.N

In a typical year, the EPA would receive about 12 to 15 requests for hardship exemptions and would grant about half of them, a former official familiar with the program told Reuters.

## EXEMPTIONS SAVE REFINERS BIG BUCKS

Appellate Case: 18-9533 Document: 01019999253 Date Filed: 05/29/2018 Page: 22  
Andeavor sold some 100 million of those credits to its competitors in recent weeks, according to two brokers in the biofuels credit market. The company otherwise would have needed to provide those credits to the EPA to prove compliance with the RFS.

Those credits would be worth about \$58 million based on a Reuters calculation of average renewable fuel RIN prices this year.

In the past, other companies have said the exemptions they were granted saved them tens of millions of dollars, according to Securities and Exchange Commission filings.

Last year, for example, HollyFrontier disclosed a reduction of almost \$58 million in its costs of credits for two refineries for 2016.

Refiners granted exemptions win in two ways: They no longer have to blend biofuels or buy credits to comply with the law, and they can sell any credits they had previously purchased to use for compliance.

Reporting by Jarrett Renshaw and Chris Prentice; Additional reporting by Jessica Resnick-Ault; Editing by Richard Valdmanis and Brian Thevenot

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#### BUSINESS NEWS

MAY 28, 2018 / 7:42 AM / UPDATED 12 HOURS AGO

## U.S. and China clash over 'technology transfer' at WTO

Tom Miles



GENEVA (Reuters) - Chinese and U.S. envoys sparred at the World Trade Organization on Monday over U.S. President Donald Trump's claims that China steals American ideas, the

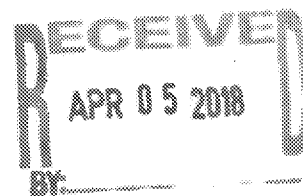


## **Appendix D**

### **RFA FOIA Request of April 4, 2018**

April 4, 2018

National Freedom of Information Officer  
U.S. Environmental Protection Agency  
1200 Pennsylvania Avenue, NW (2822T)  
Washington, DC 20460



*RE: Freedom of Information Act ("FOIA") Request for Small Refinery and Small Refiner Hardship Exemption Materials*

Dear FOIA Officer:

In January 2018, I requested dialogue with Administrator Pruitt regarding the Agency's review and issuance of small refinery and small refiner disproportionate economic hardship exemptions under the Renewable Fuels Standard.<sup>1</sup> In the absence of any response from the Agency, and amid reports that EPA has granted more than two dozen small refinery or small refiner economic hardship exemptions in the past year without public notice or comment, I am formally requesting under the Freedom of Information Act<sup>2</sup> the following information and documents from the Office of Air and Radiation and the Office of the Administrator:

- Any and all verification letters submitted to EPA seeking small refiner or small refinery exemptions under 40 C.F.R. § 80.1441(e)(2) or § 80.1442(h).
- Any and all documents reflecting the Agency's review of the verification letters submitted by small refiners or small refineries, including all correspondence with the small refiner or small refinery submitting the letter.
- Any and all petitions from refiners or small refineries seeking an extension of the small refiner or small refinery exemption based on a claim of disproportionate economic hardship, including any supporting information (other than material identified and marked as confidential business information).
- Any and all correspondence between EPA and refiners or small refineries seeking an extension of the small refiner or small refinery exemption based on a claim of disproportionate economic hardship, including any supporting information (other than material identified and marked as confidential business information).
- Any and all documents discussing or describing the refining capacity represented by the exempted small refiners and small refineries and from those small refiners and small refineries for which an extension was requested;
- Any and all documents granting or denying a small refinery or small refiner extension request considered in 2016, 2017, and 2018;

<sup>1</sup> 42 U.S.C. § 7545(o)(9)(B); *see also* 40 C.F.R. §§ 80.1441-80.1442.

<sup>2</sup> 5 U.S.C. § 552 *et seq.*

- Any and all EPA documents containing the criteria used by EPA to approve a small refinery or small refiner exemption request;
- Any and all EPA documents containing the criteria used by EPA to approve a small refinery or small refiner exemption *extension* request;
- Any and all EPA documents addressing whether EPA's Dec. 6, 2016 memorandum outlining financial and other information to be submitted as part of a small refinery or small refiner exemption request has been or will be updated or amended;<sup>3</sup>
- Any and all documents prepared by the Department of Energy as part of its consultation with EPA that assesses the potential economic hardship faced by a small refinery or small refiner;
- Any and all documents summarizing the number of small refinery or small refiner hardship exemptions received by EPA in 2016, 2017 and/or 2018;
- Any and all documents containing the refining capacity represented by small refineries that had submitted hardship exemption requests in 2016, 2017 and/or 2018;
- Any and all communications from EPA to small refineries or small refiners that have submitted requests for extensions of a small refiner or small refinery exemption hardship exemption requests in 2016, 2017 and/or 2018;

I am requesting that materials be provided to me on computer files or, if not maintained on computer files, in the same format as they are currently maintained at the EPA. Materials may be forwarded to me at the address above. I agree to pay reasonable fees for the materials I have requested; including actual costs up to \$250. If you estimate that actual costs will exceed \$250, please contact me so that I may arrange for payment. If documents are withheld entirely, I would kindly request that EPA: identify, at the time of document production, any and all material which is withheld; provide a justification for withholding the information, pursuant to 5 U.S.C. § 552(a)(6); and identify the exemption which EPA believes allows the withholding of the requested information.

If you should have any questions about this request, please feel free to contact me at (202) 289-3835 or [BobD@ethanolrfa.org](mailto:BobD@ethanolrfa.org).

Sincerely,



Bob Dinneen  
President and CEO  
Renewable Fuels Association

<sup>3</sup> Memorandum from Byron Bunker, U.S. EPA, Office of Air and Radiation, *Financial and Other Information to Be Submitted with 2016 RFS Small Refinery Hardship Exemption Requests* (Dec. 6, 2016).



425 Third Street, SW  
Suite 1150  
Washington, DC 20024

*Mr. Larry GroHesman*  
National Freedom of Information Officer  
U.S. Environmental Protection Agency  
1301 Constitution Avenue, NW, Room 6416  
West  
Washington, D.C. 20004

## **Appendix E**

### **Bipartisan Senate Letter of April 12, 2018**

United States Senate

WASHINGTON, DC 20510

April 12, 2018

The Honorable Scott Pruitt  
Administrator  
Environmental Protection Agency  
1200 Pennsylvania Avenue, N.W.  
Washington, D.C. 20460

Dear Administrator Pruitt:

We are writing to you regarding the actions the Environmental Protection Agency (EPA) has taken to undermine commitments President Trump made on the Renewable Fuel Standard (RFS) to our constituents. Recent reports indicate dozens of small refiner waivers have been secretly granted to large, multi-billion-dollar companies under the guise of the small refinery hardship exemption provision in section 211(o)(9) of the Clean Air Act. This is extremely concerning to us.

During your confirmation hearing for the post of Administrator of the EPA, you said, *"Any steps that the EPA Administrator takes need to be done in such a way as to further the objectives of Congress in that statute, not undermine the objectives of Congress in that statute."* You also wrote to a number of Senators in October 2017 and said, *"I reiterate my commitment to you and your constituents to act consistent with the text and spirit of the RFS. I take seriously my responsibility to do so in an open and transparent manner that advances the full potential of this program..."*

According to recent reports, the EPA has already issued 25 "disproportionate hardship" waivers to large, multi-billion-dollar refining companies reporting billions of dollars of profits since 2016. Such action would represent a clear violation of your commitments and clearly undermine the President's long-standing support of the RFS.

These waivers fall well outside the bounds of the letter or spirit of this provision in the law, which sought to provide flexibility for the smallest of U.S. refiners, and only in cases of genuine hardship. Worse, EPA's actions are already hurting biofuel producers and farmers across the United States at a time when farm income is at the lowest levels since 2006 and retaliatory trade measures from China threaten to deepen the crisis.

In 2015, 37 Senators wrote to the EPA requesting that the agency issue a strong Renewable Volume Obligation (RVO), citing the RFS's success in driving economic development, strengthening agriculture markets, and creating hundreds of thousands of clean energy jobs in rural communities. Early reports indicate that the small refinery waivers you have granted could effectively cut biofuel demand by 1.5 billion gallons, thus effectively lowering President Trump's commitment to seeing 15 billion gallons of ethanol blended to 13.5 billion. Additionally, once these select refiners are no longer responsible for complying with these 2016 requirements, they are able to sell excess Renewable Identification Numbers (RINs) back into the market, increasing supply and lowering the price.

This further reduces incentives for blending, slashing demand for biofuels and feedstocks, and hurting farmers and biofuels companies. These waivers could cripple the market for years to come, holding back homegrown biofuels while creating a windfall profits for large oil refiners -- the exact opposite of this administration's promise to voters.

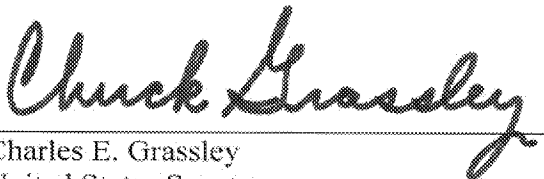
Perhaps most concerning, these lucrative waivers have reportedly been issued behind closed doors, outside of the public process, while the EPA has simultaneously been working with refineries to pressure President Trump to sign off on a RIN cap that would wreak further havoc on the RFS.

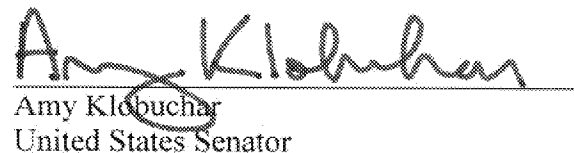
We request that you take the following actions immediately:

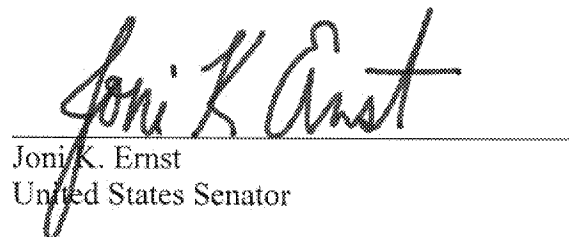
- Cease issuing any refinery waivers under the RFS;
- Provide a full list of the refiners that have received a refinery waiver in 2016, 2017 or 2018, including the name, location, refining capacity, date waiver was issued, and number of gallons waived;
- Provide a detailed report to Congress within two weeks of receipt of this letter that describes your justification for providing each of these waivers. Specifically, please include whether the volumes were redistributed to other obligated parties. If the volumes were not redistributed, please explain why they were not and the reason EPA decided to undercut the RVOs against the President's commitment;
- Respond in writing describing your commitment and plan to consider future small refinery waivers only during the annual RVO rulemaking process and commitment to provide full notice and opportunity for comment on any future small refinery waiver requests.

We appreciate your timely response to these matters.

Sincerely,

  
Charles E. Grassley  
United States Senator

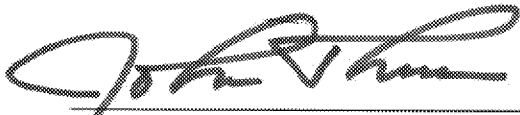
  
Amy Klobuchar  
United States Senator

  
Joni K. Ernst  
United States Senator

  
Debbie Stabenow  
United States Senator

  
Deb Fischer  
United States Senator

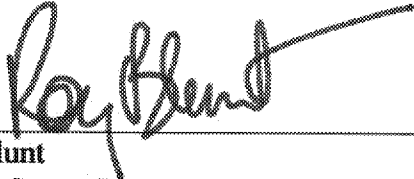
  
Richard J. Durbin  
United States Senator



John Thune  
United States Senator



Tina Smith  
United States Senator



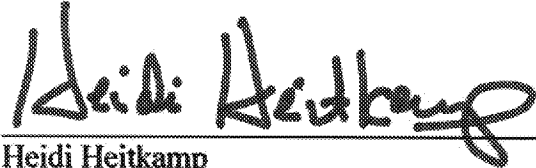
Roy Blunt  
United States Senator



Claire McCaskill  
United States Senator



Tammy Duckworth  
United States Senator



Heidi Heitkamp  
United States Senator



Joe Donnelly  
United States Senator



**Appendix F**

**Hearing Transcript, April 26, 2018**

4133 outspoken positions on the Renewable Fuel Standards programs.  
4134 So here we are a year later, the EPA's implementation of the  
4135 RFS programs, specifically the small refinery waiver  
4136 provision, is under fire from both farmers and refiners.

4137 My colleague Mr. Green raised the issue of secret  
4138 waivers. I want to build on that a little bit. I want to  
4139 know about CVR Energy in which Carl Icahn owns a majority  
4140 stake. Administrator Pruitt, you met with representatives  
4141 from Carl Icahn's company, CVR Energy, in June of 2017. Is  
4142 that correct?

4143 Mr. Pruitt. If that is what the calendar represents.

4144 Mr. Sarbanes. Okay. Did Carl Icahn's company apply for  
4145 a waiver from ethanol blending requirements for any of its  
4146 refining facilities?

4147 Mr. Pruitt. I am unsure.

4148 Mr. Sarbanes. Okay. We will look at the record for  
4149 that. And did Carl Icahn's company receive a waiver for any  
4150 of its refining facilities?

4151 Mr. Pruitt. These exemptions are governed by statute as  
4152 you know.

4153 Mr. Sarbanes. Okay. Well, you are going to find that  
4154 out for us and we appreciate your following up because that

4155 is important to know because it raises serious questions  
4156 about conflicts of interest. I have had the privilege of  
4157 chairing here in the Congress the Democracy Reform Task  
4158 Force. We have been trying to keep up with the ethical  
4159 lapses of the Trump administration, which I will tell you is  
4160 kind of a full-time job, and you certainly have been at the  
4161 center of some of that focus. To date, five independent  
4162 federal investigations have been initiated at this  
4163 committee's request and more than eight independent federal  
4164 reviews are currently underway with respect to your office.

4165 Yesterday, the Democracy Reform Task Force released  
4166 another report in a series that is looking at failures and  
4167 ethical lapses within the Trump administration. This one was  
4168 detailing your wasteful spending and favors for your friends.  
4169 It put the interests of dirty polluters ahead of the American  
4170 people. So this is now available for people to take a look  
4171 at. It goes through the litany of ethical violations that  
4172 have come to characterize and be the hallmark of your time in  
4173 office.

4174 You have really become, I mean it is sad to say it, but  
4175 you have become in many respects, and you ought to take this  
4176 to heart as somebody who holds an office in the public trust,

**UNITED STATES COURT OF APPEALS  
FOR THE TENTH CIRCUIT  
OFFICE OF THE CLERK**

Byron White United States Courthouse  
1823 Stout Street  
Denver, Colorado 80257  
(303) 844-3157

Elisabeth A. Shumaker  
Clerk of Court

May 30, 2018

Chris Wolpert  
Chief Deputy Clerk

Mr. Matthew W Morrison  
Ms. Cynthia Cook Robertson  
Mr. Bryan Stockton  
Pillsbury Winthrop Shaw Pittman  
1200 Seventeenth Street, NW  
Washington, DC 20036-3006

**RE: 18-9533, Renewable Fuels, et al v. EPA**  
Dist/Ag docket: 1-3876

Dear Counsel:

The court has received and docketed your petition for review. Please note your case number above. Copies of the Tenth Circuit Rules, effective January 1, 2018, and the Federal Rules of Appellate Procedure, effective December 1, 2017, may be obtained by contacting this office or visiting our website at <http://www.ca10.uscourts.gov>. In addition, please note all counsel are required to file pleadings via the court's Electronic Case Filing (ECF) system. You will find information regarding registering for and using ECF on the court's website. We invite you to contact us with any questions you may have about our operating procedures. Please note that all court forms are now available on the court's web site.

We have served the petition for review on the respondent agency via electronic notice using the court's ECF system. Petitioner must serve a copy of the petition for review on all parties, other than the respondent, who participated in the proceedings before the agency.

Attorneys must complete and file an entry of appearance form within 14 days of the date of this letter. *See* 10th Cir. R. 46.1(A). Pro se parties must complete and file the form within thirty days of the date of this letter. An attorney who fails to enter an appearance within that time frame will be removed from the service list for this case, and there may be other ramifications under the rules. If a respondent does not wish to participate in the appeal, a notice of non-participation should be filed via ECF as soon as possible. The notice should also indicate whether counsel wishes to continue receiving notice or service of orders issued in the case.

In addition, petitioner must complete and file a docketing statement within 14 days of the date of this letter. *See* 10th Cir. R. 15.1.

The respondent agency shall file the record, or a certified list in lieu of the record, within 40 days after service of the petition for review. *See* Fed. R. App. P. 17. If a certified list is filed, the entire record, or the parts the parties may designate, must be filed on or before the deadline set for filing the respondent's brief. *See* 10th Cir. R. 17.1.

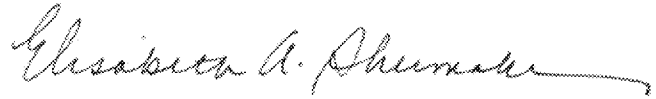
Petitioner's opening brief must be filed within 40 days of the date on which the certified list or record is filed. *See* 10th Cir. R. 31.1(B). Subsequent briefs must be filed as required by Fed. R. App. P. 31(a). Motions for extension of time to file briefs must comply with 10th Cir. R. 27.1 and 27.5. These motions are not favored.

Briefs must satisfy all requirements of the Federal Rules of Appellate Procedure and Tenth Circuit Rules with respect to form and content. *See* specifically Fed. R. App. P. 28 and 32 and 10th Cir. R. 28.1, 28.2 and 32, as well as 31.3 when applicable. Seven hard copies of briefs must be provided to the court within two days of filing via the court's Electronic Case Filing system. *See* 10th Cir. R. 31.5 and the court's CM/ECF User's Manual. Counsel are encouraged to utilize the court's Briefing & Appendix checklist when compiling their briefs.

This matter will be heard on a record that the agency provides. *See* Fed. R. App. P. 17(a) and 10th Cir. R. 17.3. As a result, the parties need not file an appendix. If, however, any party wishes to file a separate appendix it should file a motion seeking that relief.

Please contact this office if you have questions.

Sincerely,



Elisabeth A. Shumaker  
Clerk of the Court

cc: General Counsel  
Matthew Z. Leopold  
Scott Pruitt  
Jeffrey H. Wood

EAS/lg

Message

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**From:** Turley, Jennifer [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=FA452016486D48E8AE07B0A3B064D5FB-TURLEY, JENNIFER]  
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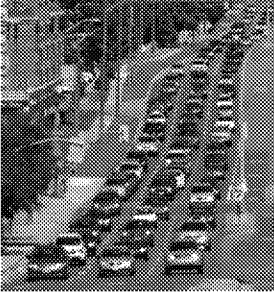
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**Subject:** Air & Radiation Law News for February 5, 2014



## Air & Radiation Law News for February 5, 2014

### **Bloomberg Daily Environment Report™ BNA**

#### *Air Pollution*

##### **Few Changes Made to Air Toxics Standards**

The Environmental Protection Agency is making few changes to existing air toxics standards for three industrial source categories in the chemical manufacturing industry. In a final rule signed Jan. 31 and posted Feb. 3, the EPA said it reviewed...

#### *Climate Change*

##### **Senate Caucus Prepares Strategy**

##### **To Defend Obama Climate Change Plan**

The Senate climate change caucus, which was formed in part to defend President Barack Obama's efforts to limit carbon dioxide emissions from power plants, will offer some insights into its strategy next week, Sen. Barbara Boxer (D-Calif.)...

#### *Energy*

##### **Bipartisan Coalition Weighs Options**

##### **On Keystone; Unions Urge Quick Action**

A bipartisan coalition of House and Senate lawmakers said that they are looking at several ways that Congress could approve the Keystone XL oil pipeline, including another deadline for an administration decision....

#### *Energy*

##### **House Republicans Considering Legislation**

##### **To Speed Natural Gas Export Review Process**

Top Republican members of the House Energy and Commerce Committee said Feb. 4 they may introduce legislation on the approval process for exporting liquefied natural gas to overseas markets if the Energy Department does not pick up the pace...

#### *Energy*

##### **Wyoming Refinery Sues EPA After Petition**

##### **For Renewable Fuel Exemption Denied**

A Wyoming refinery seeking a temporary exemption from the renewable fuel standard blending requirements sued the Environmental Protection Agency after its request was denied (Hermes Consol. LLC v. EPA, D.C. Cir., No. 14-1016, 2/3/14)....

### *Enforcement*

#### **N.J. Contractors Guilty of Asbestos Violations**

The operators of a company hired to demolish the former Zurbrugg Memorial Hospital in Riverside, N.J., pleaded guilty Jan. 30 to violating state law by removing asbestos from the building without a license and disposing of it illegally (State...

### *Hazmat Transport*

#### **PHMSA Submits Revised Lithium Battery**

#### **Rule to White House Office for Review**

The Pipeline and Hazardous Materials Safety Administration has submitted a revised final rule on the transport of lithium batteries to the White House Office of Management and Budget for review, according to OMB's website....

### *Natural Resources*

#### **Two Interior Nominees Offer Reassurances**

#### **On Their Support for Energy Development**

Two nominees for high posts in the Interior Department responded Feb. 4 to questions and prodding from senators concerned about Obama administration policies on oil, natural gas, coal and endangered species....

### *Sustainability*

#### **Report Cites Boom in Production**

#### **Of Green Goods in Commodity Markets**

Production of commodities grown according to voluntary "green" sustainability standards is booming, with such goods having achieved "significant market penetration" in a number of key crop markets, according to a new...



Inside EPA's **Environmental Policy Report**, 02/05/2014

<http://insideepa.com/Environmental-Policy-Alert/Environmental-Policy-Alert-02/05/2014/menu-id-132.html>

### **Industry Fears Briefing, EPA Review Could Upend Boiler MACT Compliance**

Industry officials are concerned that a recently announced court schedule for litigation over EPA's combustion emission rules for boilers and incinerators, along with the agency's pending reconsideration process, will leave plant owners with less time to know if they should spend millions upgrading units ahead of a key 2016 compliance deadline.

### **Court Sets New-Source Utility MACT Schedule, Severs Monitoring Issues**

The U.S. Court of Appeals for the District of Columbia Circuit is seeking legal briefing beginning next month in litigation over EPA's contested maximum achievable control technology (MACT) air toxics rule for new power plants, potentially clearing the way for oral arguments later this year and a possible ruling in 2015.

### **Industry Urges EPA To Halt Push For Sealant Alternative, Citing Risk Debate**

Producers of coal-tar sealants are calling on EPA regional officials to curtail an agency-funded project that urges consumers to voluntarily use an alternative product, arguing the program effectively bans coal-tar sealants despite lack of scientific consensus on risks to human health and the environment, and without following proper procedure.

### **Advocates, Industry At Odds Over EPA Plan To Weigh Climate In CWA Rules**

Environmentalists are urging EPA's water office to expand its pledge to incorporate climate change impacts into one rulemaking by 2015, though utilities and other industry groups are balking at the effort, saying the agency's

resources would be better spent on tools to help utilities voluntarily incorporate climate concerns into adaptation planning.

## Latest Blogs

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### Court Rejects En Banc Review Of Refinery GHG Case

A divided U.S. Court of Appeals for the 9th Circuit has rejected environmentalists' request for the full court to hear its earlier decision rejecting their . . .

# Greenwire

## COAL:

### Audit faults BLM assessments of fair market value in leasing program

Manuel Quiñones, E&E reporter

Published: Tuesday, February 4, 2014

*Updated at 2:52 p.m. EST.*

The Bureau of Land Management has failed to ensure companies pay fair market value for leasing federal coal, the Government Accountability Office says in a new report.

The report says BLM failed to enforce uniform policies for establishing the fair market value of coal reserves.

"BLM's guidance offers flexibility in how to estimate fair market value," GAO says in the report summary, "and BLM state offices vary in the approaches they used to develop an estimate of fair market value."

Some BLM offices estimated the fair market value of a coal tract by analyzing information from previous lease sales and the amount of money companies stood to make from mining and selling the federal coal, the report says.

"However," GAO adds, "some offices relied solely on the comparable sales approach and may not be fully considering future market conditions as a result."

The GAO report is the latest in a string of studies about BLM's coal-leasing program that's under scrutiny from environmental and taxpayer watchdog groups.

Massachusetts Sen. Ed Markey requested the new report when he was the top Democrat on the House Natural Resources Committee. Today he echoed BLM critics in calling for a coal leasing suspension.

Environmentalists have focused their concerns on the potential climate impacts of mining and burning federal coal, while taxpayer watchdogs accuse BLM of not taking exports into account when calculating fair market value. That, they say, means taxpayers are losing out.

The new report says BLM considered exports to a "limited extent." The issue was mentioned in reports by the Montana and Wyoming BLM state offices, GAO said, but not really considered in seven other states that lease coal.

"As a result," the report says, "BLM may not be factoring specific export information into appraisals or may not be fully considering the export potential of a lease tract's coal as called for in agency guidance."

Auditors also found that BLM didn't consistently document the reasons behind leasing decisions, including four instances out of dozens GAO reviewed where the agency accepted company bids under fair market value.

GAO said some agency offices were not following guidance for reviewing appraisal reports. The report faulted BLM for not taking advantage of the Interior Department's Office of Valuation Services, which could have provided independent, third-party reviews of appraisals.

"Adequate review of the fair market value process is critical to ensure that its results are sound and key decisions are fully documented," GAO says.

The Wyoming BLM office posts information about lease sales on its website, including past actions, while other states post only general information, the report says.

"BLM's guidance states that redacted public versions of its appraisal reports should be prepared, but no BLM state office has prepared such reports," the report adds.

"BLM supplied redacted versions of fair market value documents in response to a recent public information request only after being advised to do so by Interior's Solicitor's office," it says.

## Reactions

The report was relatively tame compared with what critics of BLM have said about the agency's leasing process. Many of them have called for a moratorium.

Jeremy Nichols, climate and energy director for WildEarth Guardians, a leading group in fighting coal leases, called GAO's findings "scathing" and signs of a broken system that needs to be fixed.

"The fact that there is even one instance where BLM sold coal at below fair market value, or failed to take into account exports, or failed to document the rationale for its decisions is unacceptable," he said.

Tommy Beaudreau, acting assistant Interior secretary for lands and minerals management, said BLM was already working to correct the deficiencies identified by the audit.

BLM "has already begun implementing a number of reforms designed to improve and standardize the performance of the BLM coal program, including the establishment of a Memorandum of Understanding with the Department's Office of Valuation Services to strengthen the BLM coal valuation program," he said.

In an Aug. 29, 2013, letter to GAO, Beaudreau added, "The BLM will also soon publish additional detailed information regarding past lease sales on its national and state websites."

The National Mining Association in a statement noted GAO's "narrowly tailored" recommendations and BLM's progress in addressing them.

"The report is therefore not the condemnation of the federal coal leasing program that coal opponents hoped to see," NMA spokesman Luke Popovich said. "Nor does it credit spurious allegations that exports of leased coal deprive the public of fair market value."

He added, "There is no basis in this report for claims that there are significant deficiencies in the federal coal lease program that deprive taxpayers of fair value from coal mined on federal lands."

The report says BLM accepted most bids submitted by coal companies. The review also said most lease sales have gone to a single bidder.

Under the current system, companies often request land to be offered for lease with the purpose of expanding existing operations. But watchdog groups have called the leasing statistics evidence of lack of competition in lease sales.

"These noncompetitive practices are costing taxpayers in Massachusetts and across the nation, benefitting just a few coal companies who may be leasing public coal resources at bargain basement prices," Markey said in a statement.

"Taxpayers are likely losing out so that coal companies can reap a windfall and export that coal overseas where it is burned, worsening climate change," he said. "This is a bad deal all around."

## Other reports

An Interior Office of Inspector General report released last year said BLM may have lost more than \$60 million from coal lease modifications. Both the agency and coal industry supporters in Congress questioned the findings (*E&E Daily*, July 10, 2013).

Some lawmakers said companies were likely paying above fair market value for at least some leases. BLM accepts the highest bid as long as it falls above its fair market value estimate.

Another study released in 2012 by the Institute for Energy Economics and Financial Analysis accused BLM of missing out on \$28.9 billion in revenue over the previous three decades (*Greenwire*, June 25, 2012).

Markey had his own estimate. "Based on my staff's examination of the materials," he said, "I believe that using appropriate market calculations and assumptions in some recent coal lease sales could potentially have yielded \$200 million more for the American people, and possibly hundreds of millions of dollars more."

Markey also said GAO released two separate reports -- one public and the other private. The agency said some secrecy was necessary to ensure the integrity of the leasing process.

"It would be very helpful for the American people to be able to review this information," Markey responded. "But even if that is not possible because of concerns about proprietary information, Senators should be able to review this information and debate it in order to ensure that taxpayers are protected."

GAO found that BLM has leased more than 100 tracts for coal mining since January 1990. Revenues from coal leases have been about \$1 billion annually in recent years, the review said.

[Click here](#) to read the GAO study.

## CLIMATE:

### More questions raised about EPA process for new power plant rule

Jean Chemnick, E&E reporter

Published: Tuesday, February 4, 2014

The process U.S. EPA followed in crafting its carbon dioxide proposal for new power plants again came under scrutiny yesterday, this time from one of the original architects of modern day interagency review.

Jim Tozzi -- whose two decades of executive branch service included a stint as head of the Office of Management and Budget's Office of Information and Regulatory Affairs during the Reagan administration -- said in a [letter](#) yesterday to EPA Administrator Gina McCarthy that the agency's proposal relies on scientific data that were not vetted using the strict procedures laid out in the Data Quality Act.

"I'm not arguing whether the material is good or bad; it's simply a procedural thing," said Tozzi, who now heads the Washington, D.C.-based Center for Regulatory Effectiveness, in a brief interview.

Tozzi's letter moves to reopen a question laid to rest two weeks ago, after a working group of EPA's independent scientific advisory board (SAB) decided not to recommend a review of the scientific underpinnings for EPA's proposal (*Greenwire*, Jan. 22). The proposed rule, released Sept. 20, 2013, relies on peer-reviewed Energy Department data to support its requirement that all new coal-fired power plants use partial carbon capture and storage technology to reduce heat-trapping emissions.

The SAB subpanel had previously raised questions about the literature used in EPA's proposal, which is a product of the National Energy Technology Laboratory. Those doubts have been referred to frequently by the proposal's GOP opponents on Capitol Hill (*Greenwire*, Jan. 16).

But during a Jan. 21 conference call, members of a SAB working group agreed that EPA's data on carbon capture do meet the agency's peer review standards.

But Tozzi argued that the DOE peer review and SAB vetting were not enough. The agency failed to provide legally mandated opportunities for public comment and engagement, he said.

"The Data Quality Act (DQA) mandates a very structured peer review with public participation, and it doesn't matter how many you've done before; you have to do one [peer review] pursuant to this law," said Tozzi, who had a hand in getting the law enacted in 2000. He said his letter could inform future litigation against the agency if it finalizes its proposal without addressing the peer-review issue.

But Tozzi's argument depends on his assertion that the literature EPA uses in its new power plant proposal would meet DQA's standard for "highly influential scientific assessments," because the rule itself would trigger annual costs of \$500 million or more. EPA has said its CO<sub>2</sub> proposal would not have a significant economic effect because no new coal-fired power plants are in the pipeline anyway, and because natural gas plants can easily meet the rule's 1,000-pound-per-megawatt-hour limit.

Andrew Rosenberg, who heads the Union for Concerned Scientists' Center for Science and Democracy, said SAB's decision last month settled the question of whether EPA used adequately peer-reviewed data to support its proposal, though he noted that the SAB working group had chided the agency for its slowness in sharing information.

"They were critical, I think appropriately, that EPA did not provide information about what information was reviewed and what the scope of the information was well enough in advance," Rosenberg said.

The group's process did include public comment, he said. But while it gave its blessing to scientific literature demonstrating the feasibility of capturing power plant CO<sub>2</sub>, it raised concerns in a letter to EPA last week about the environmental repercussions of long-term carbon sequestration. The letter recommends that EPA continue to review the impact of its proposed rule after it takes effect.

But scientific literature only forms part of the basis for the power plant proposal, and its opponents say the other legs are wobbly.

To support this, they point to an email [exchange](#) last August between OMB and EPA personnel, in which the executive office appears to raise grave concerns about the basis for EPA's CCS requirement.

In the exchange one month before EPA's proposal was released, OMB staffers note that the agency's draft relies on "literature reviews, pilot projects, and commercial facilities yet to operate" when making the CCS determination.

"We believe this cannot form the basis of a finding that CCS on commercial-scale power plants is 'adequately demonstrated,'" OMB states in a comment to EPA. It adds: "We are concerned that the unsupported assertions of technology as 'adequately demonstrated' in this rulemaking will form a precedent for future such determinations, even if the three CCS projects used as the basis for the determination fail or are never completed."

OMB is referring to three power plant CCS projects currently in development in the United States, which EPA cites in the proposal together with a fourth project in Canada to argue that CCS is ready to help coal-fired power plants comply with the new standard.

EPA responds that it "believes that the evidence supports the finding that implementation of CCS technology to meet the proposed standard is technically feasible." But it promises to shore up that justification in its final rule.

David Hawkins, director of the Natural Resources Defense Council's Climate Center, said in an email that EPA included more in its preamble for the new power plant rule than literature, pilot projects and yet-to-be constructed facilities -- it also pointed to natural gas facilities that are already up and running and using CCS.

"The unidentified commenter misstates the basis for EPA's conclusion about CCS and offers nothing to suggest that CCS is not technically ready," he said.

Hawkins' colleague John Walke said that it was not uncommon for OMB to ask pointed questions of regulatory agencies during interagency review of their rulemakings. But the fact that the office gave EPA's proposal a green light means that it was satisfied those concerns were addressed, at least to an extent, he said.

"It was the case here, as it almost always is, that OMB signed off on the EPA document that was signed and published," he said. Additional changes may occur before EPA publishes its final rule.

*Reporter Emily Yehle contributed.*

## **OIL AND GAS:**

### **Ex-Chris Christie aide linked to Pinelands pipeline project**

Published: Tuesday, February 4, 2014

A former aide of embattled New Jersey Gov. Chris Christie (R) is married to the executive of a company that tried to build a natural gas pipeline through the state's Pinelands region, a project that the state aggressively supported.

Christina Genovese Renna, who resigned last week from her post as Christie's director of intergovernmental affairs, is married to Michael Renna, the president and chief operating officer of South Jersey Industries.

The firm's parent company, South Jersey Gas, attempted to build a 22-mile natural gas pipeline through the sensitive Pinelands region. The Christie administration backed the project despite concerns from environmentalists.

The Pinelands Commission blocked the project last month.

"There were multiple red flags that this was violating the Pinelands Commission's mission [but] the administration was recklessly moving forward with it" anyway, said Doug O'Malley, the director of the advocacy group Environment New Jersey.

A spokesman for Christie denied the charge.

"The administration's support of the project is public policy based and connected exclusively with the long-term energy demands of New Jersey," said the spokesman, Kevin Roberts.

Genovese Renna's attorney Henry Klingeman said there was no conflict of interest because she "had nothing to do with this policy matter at the governor's office."

Still, the flap is bad news for Christie, whose administration is under investigation for its role in the closure last fall of several lanes on the George Washington Bridge. Genovese Renna is one of several officials and former aides who were issued subpoenas in the case (Matt Friedman, [Newark Star-Ledger](#), Feb. 3). -- DB

## **CLIMATE:**

### **Appeals court declines enviros' request to rehear Wash. refinery rules case**

Jeremy P. Jacobs, E&E reporter

Published: Tuesday, February 4, 2014

A federal appeals court yesterday declined to reconsider its ruling against environmental groups seeking to force Washington state to regulate greenhouse gases from local oil refineries.

Sierra Club and the Washington Environmental Council had asked the 9th U.S. Circuit Court of Appeals to rehear its October ruling *en banc*, meaning before a larger panel of judges.

The request failed to garner the support of a majority of the San Francisco-based court's judges needed to grant rehearing, though three judges said the court's original ruling was in error.

Advocates claimed that state law required the Washington Department of Ecology and other agencies to set standards for Washington's five oil refineries once the state declared greenhouse gases an "air contaminant."

The groups argued that the gases were contributing to global warming, which in turn was causing health problems and reducing recreational activities for their members.

A three-judge panel, however, ruled that the groups lacked standing, holding that they were unable to prove specific harm caused by the emissions and that an action taken by the court would necessarily correct the problem.

"Plaintiffs must show that a causal connection exists between their asserted injuries and the conduct complained of," wrote Judge Milan Smith Jr., a Republican appointee. "Therein lies the problem. Plaintiffs offer only vague, conclusory statements that the Agencies' failure to set ... standards at the Oil Refineries contributes to greenhouse gas emissions, which in turn, contribute to climate-related changes that result in their purported injuries" (*E&ENews PM*, Oct. 17, 2013).

The case has been closely watched because the issue of standing often arises in lawsuits brought by environmental groups. Judge Ronald Gould, a Democratic appointee, filed a dissent, arguing that Supreme Court precedent holds that the groups should have had standing in the case.

Gould, joined by two other circuit judges, wrote that in the high court's landmark 2007 *Massachusetts v. U.S. EPA* decision, which forced EPA to regulate greenhouse gas emissions, the justices said Massachusetts had standing. That holding, Gould wrote, should extend to environmental groups.

"Limiting the reasoning of *Massachusetts v. EPA* to cases involving sovereign states is a mistake that will harm the public," Gould wrote. "In my view, as our planet warms and our oceans rise, individual citizens should have standing to urge their states to take corrective incremental actions to combat global warming."

Smith, however, added yesterday that the proper Supreme Court ruling to apply is 1992's *Lujan v. Defenders of Wildlife*, in which the court held that environmental groups lacked standing to challenge Interior Department regulations involving the Endangered Species Act.

Smith said groups must clear a higher bar to prove they have standing if they are trying to force a government agency to act on a third party, such as refineries.

The environmental groups could next ask the Supreme Court to hear the case.

## **KEYSTONE XL:**

### **Oil sands study finds higher emissions than industry estimates**

Published: Tuesday, February 4, 2014

A new study could raise questions about the accuracy of environmental impact assessments of Canadian oil sands days after the State Department released a report about the controversial Keystone XL pipeline, which would carry oil sands crude to Texas refineries.

Researchers found that oil sands pollution emitted during the recovery of oil from western Canadian oil sands deposits is two to three times higher than industry estimates.

The study, published in the *Proceedings of the National Academy of Sciences*, began as a term paper project by University of Toronto student Abha Parajulee. She compared polycyclic aromatic hydrocarbon, or PAH, emissions estimates from corporations' environmental impact assessments with measurements taken by academic scientists and by the Canadian Ministry of the Environment.



She found the estimates were significantly lower than the actual measurements, likely because they did not factor in the escape of PAHs from tailings ponds. Burning fossil fuels can create PAHs, some of which have been linked to certain cancers (Kerry Sheridan, [Agence France-Presse](#), Feb. 3). -- **WW**

## UTILITIES:

### Calif. fines 2 firms in botched power plant implosion

Published: Tuesday, February 4, 2014

California has fined two subcontractor firms involved in a power plant implosion last year that injured five spectators.

The state Department of Occupational Safety and Health fined and cited Demtech Inc. \$14,000 and Alpha Explosives \$14,400 for violations during the Aug. 3, 2013, demolition of the decommissioned Pacific Gas and Electric Co. plant in Bakersfield, Calif.

The blast sent shrapnel into a crowd of spectators who had gathered to watch the event, injuring five people. One man's leg was partly severed in the accident ([Greenwire](#), Aug. 5, 2013).

The state said it would close the investigation on Feb. 15 if the contractors don't appeal the fines ([Associated Press](#), Feb. 4). -- **DB**

*CLIMATEWIRE – WED., FEBRUARY 5, 2014 – [Read the full edition](#)*

### 1. ELECTRICITY: Israel reduces its carbon footprint with wind, solar and natural gas

KETURA, Israel -- The first prime minister of Israel, David Ben-Gurion, once had a vision to "make the desert bloom." Through innovation, arid regions of this country were successfully turned into bountiful farmland. Now Israelis are harvesting another resource: renewable energy.

### 2. RESEARCH: Scientist gets funding to build experimental Arctic sea ice chamber

The Arctic is a harsh place, with subzero temperatures and rapidly changing weather conditions. That can make it difficult for researchers to conduct controlled experiments. But Roland von Glasow, a professor at the University of East Anglia who studies the chemical reactions between Arctic sea ice and the atmosphere, has a solution: He plans to build an 8-meter-cubed model Arctic Ocean at his university, where he can study how sea ice reacts with the atmosphere from the comfort of his laboratory.

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## TODAY'S STORIES

3. ENERGY: As renewables come online, business models, regulatory structures lag -- panel
4. CITIES: Bloomberg lauds major cities group for 2-year climb in climate actions
5. ARCTIC: Greenland glacier, likely source of Titanic tragedy, is accelerating toward the sea
6. AGRICULTURE: Farm bill has some conservation provisions, but climate impacts unclear
7. PUBLIC HEALTH: Climate change will increase U.K.'s heat-related deaths 257% by 2050 -- study
8. FLOODS: Southwest England's severe flood woes continue
9. ARCTIC: Lakes' decline reflects climate change
10. NATIONS: U.K. GHG emissions grew 3.2% in 2012

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## E&ETV'S ONPOINT

11. **UTILITIES:** EPRI's Ray discusses role of coal in evolving electric power sector

*ENERGYWIRE -- WED., FEBRUARY 5, 2014 -- [Read the full edition](#)*

1. **NATURAL GAS:** Focus on well efficiency keeps Marcellus Shale pumping despite low prices

If there are "monster wells" dwelling in the Marcellus Shale, count Cabot Oil & Gas Corp. among those trying to capture one. In December, the Marcellus specialist unveiled its largest operation yet: an attempt to drill 10 horizontal wells from a single surface point. The firm billed it as a tour de force of efficiency with techniques and technologies that showed the edge of industry's reach into shale rock.

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**OIL, GAS AND COAL**

2. **TRANSPORT:** 'Bakken Blitz' brings penalties for alleged crude-by-rail violations
3. **EXPORTS:** House committee wants to speed up gas shipments, stay slow on oil
4. **EARNINGS:** BP touts 'a new future' from Russian deal as profits skid
5. **MICHIGAN:** Bills seek to incentivize CO2-based oil extraction
6. **OFFSHORE DRILLING:** Landmark platform checks into business in Gulf of Mexico
7. **PEOPLE:** D.C. law firm hires energy attorney to do double duty in Houston
8. **PEOPLE:** Chesapeake recruits former Okla. enviro official
9. **PEOPLE:** Career oilman among new Suncor board appointees
10. **OIL SANDS:** Satellite data raise questions about safety of bitumen extraction
11. **NEW YORK:** Second lawsuit threatened over fracking rules delay
12. **SAFETY:** Accidents in North Sea prompt helicopter operator collaboration

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**ELECTRIC UTILITIES**

13. **SECURITY:** Senate report sees risks from 'weaknesses' in government cyber systems
14. **CALIFORNIA:** FERC extends utility's low water flows in drought-stricken watershed
15. **UTILITIES:** Calif. city files suit seeking papers showing regulator's 'cozy' relationship with PG&E
16. **UTILITIES:** N.D. power company adds generation as oil field demand surges
17. **ELECTRICITY:** Mandated power-storage investment in Calif. boosts Bay Area company

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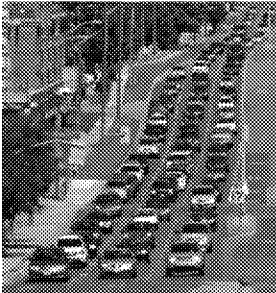
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**Subject:** Air & Radiation Law News for October 28, 2014



## Air & Radiation Law News for October 28, 2014

### **Bloomberg BNA Daily Environment Report™**

#### *Air Pollution*

##### **Beijing Tells Residents to Leave Town To Clear Air Ahead of APEC Summit**

China's desire that blue skies and traffic-free streets greet world leaders at a summit in Beijing next week—after air pollution in the capital reached hazardous levels at least 10 days so far this month—is prompting the...

#### *Climate Regulation*

##### **Sustained Lobbying Push on EPA Standards For Power Plants Continues, Records Show**

At least 120 groups varying from public health advocacy associations to large publicly traded companies reported lobbying Congress during the third quarter of 2014 to express their views on the Environmental Protection Agency's proposed...

#### *Energy*

## **Keystone Opponents Energized by Drop In Crude Oil Prices, Effect on Production**

Falling oil prices have energized opponents of the proposed Keystone XL pipeline....

### *Fuel Efficiency*

#### **China Could Link Taxes to Fuel Consumption To Push Efficient, Alternative Energy Cars**

China is considering higher taxes on fuel and on the purchase of inefficient cars to encourage consumers to buy smaller-engine and alternative-energy vehicles, according to a report from an automotive publication under the state-run People's...

### *International Climate*

#### **Lack of Progress at Bonn Climate Talks Raises Stakes for December Lima Summit**

Most of the central items on the agenda for the just-completed Bonn Climate Change Conference were left unresolved, further raising the stakes for the 20th Conference of the Parties summit in Lima, which will take place a year before a global...

### *Pipeline Safety*

#### **PHMSA Requests Renewal of Information Collections**

The Pipeline and Hazardous Materials Safety Administration is requesting to renew two pipeline safety information collection requests on gas pipeline recordkeeping requirements and on customer-owned service lines. These information...

### *Radioactive Waste*

#### **Three States Petition D.C. Circuit to Review NRC Radioactive Waste Storage Rule**

The attorneys general of New York, Connecticut and Vermont filed a petition with the U.S. Court of Appeals for the District of Columbia on Oct. 27, asking the court to review and vacate the Nuclear Regulatory Commission's recent rule for...

### *Regulatory Policy*

#### **Judge Denies EPA's Request to Clarify Jurisdiction in Jobs Review Lawsuit**

A federal district judge has denied the Environmental Protection Agency's request to explain the court's jurisdiction to hear a lawsuit seeking an employment impact analysis of Clean Air Act regulations (Murray Energy Corp. v....

### *Renewable Energy*

#### **Solar Energy to Reach 'Grid Parity' by 2016 In Nearly All States, Deutsche Bank Predicts**

Solar energy will be cost competitive with retail electricity prices in nearly all 50 states by 2016, Deutsche Bank said in a research note. ...

### *Vehicle Fuels*

#### **Small Refiners Sue EPA After Denial Of Exemption From Fuel Standard**

Two petroleum refiners have sued the Environmental Protection Agency after it denied their request to extend small refiner exemptions from the renewable fuel standard (Lion Oil. Co. v. EPA, 8th Cir., No. 14-3405, 10/24/14; Sinclair Wyoming...

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## Latest News

### EPA Rejects Call To Speed Phaseout Of HCFC-22, Common GHG Refrigerant

EPA has rejected calls by an array of industry and environmental groups for the agency to phase out production and imports for HCFC-22, the most common hydrochlorofluorocarbon (HCFC) refrigerant and a potent greenhouse gas (GHG), more quickly than the five year years it had originally proposed, citing continued servicing needs.

### Advocates Eye Petition For EPA Rulemaking To Codify 'Aggregation' Policy

Environmentalists plan to soon file a petition with EPA seeking a Clean Air Act rulemaking to codify the agency's contested "adjacency" definition that is part of the test for determining whether to combine, or "aggregate," emissions sources for air permitting, in order to revive the strict adjacency test an appellate court scrapped in 2012.

### Industry Asks For 18-Month Stay Of Invalidated Comparable Fuels Rule

Despite opposition from environmentalists, the chemical industry is urging a federal appellate court to delay by 18 months the effect of a ruling that invalidated EPA's comparable fuels rule, contending the agency's proposed six-month delay fails to recognize "daunting challenges" facing facilities that have relied on the rule to burn certain waste material for fuel for more than 15 years.

### State-Led Group's New Vapor Intrusion Guide May Reflect EPA Approach

An organization of state regulators has released long-delayed guidance for addressing vapor intrusion risk at petroleum-contaminated sites, a guide sources say largely reflects the approach EPA is expected to take in its guidance on assessing vapor risks at petroleum-contaminated sites, recently sent to the White House for review.

# Greenwire

## RAIL:

### Amtrak ridership growth almost flat in fiscal 2014

Sean Reilly, E&E reporter

Published: Monday, October 27, 2014

Amtrak ridership edged up slightly to 30.9 million passengers in fiscal 2014, as gains on its busy Northeast Corridor were largely offset by declines on long-distance and state-supported routes, according to figures released this morning. Ticket revenues rose 4 percent to a record high of almost \$2.2 billion in comparison with 2013, the railroad said.

For the Northeast Corridor, which runs from Washington, D.C., to Boston, ridership grew 3.3 percent from about 11.3 million to 11.6 million. But on about 30 state-supported routes, the passenger totals dipped from 14.8 million to 14.7 million, and on the 15 long-distance routes, many of which are struggling with severe punctuality problems, ridership dropped 4.5 percent from approximately 4.8 million to 4.5 million passengers. For Amtrak as a whole, the net result was an overall ridership increase of 0.2 percent.

It was a similar story for ticket revenue. On the Northeast Corridor, which accounted for more than half of the total, receipts surged more than 8 percent to almost \$1.2 billion. But on the state-supported routes, ticket proceeds rose 1.8 percent to \$486.6 million; on the long-distance routes, they fell almost 3 percent to \$510.7 million, according to the numbers. For fiscal 2014, Amtrak was also budgeted to receive an almost \$1.4 billion federal subsidy.

In a news release, Amtrak leaders, who have asked Congress to appropriate \$1.6 billion for operating and capital expenses in fiscal 2015, repeated their call for stepped-up aid. Board Chairman Tony Coscia credited the railroad's

workforce for achieving "strong ridership and revenue despite the challenges with aging infrastructure" and congestion on freight rail lines also used by Amtrak's long-distance trains.

"It is now time to leverage Amtrak's successes in increasing ridership and improving performance by making much-needed investments in our nation's passenger rail system," Coscia said. Added support is particularly needed on tracks, tunnels and bridges on the Northeast Corridor and in Chicago, added Joe Boardman, Amtrak's president and CEO. "Otherwise, we face a future with increased infrastructure-related service disruptions and delays that will hurt local and regional economies and drive passengers away."

But a reauthorization bill, [H.R. 5449](#), approved last month by the House Transportation and Infrastructure Committee would keep Amtrak's base 2015 subsidy at roughly the previous year's level, with only small increases through 2018 ([Greenwire](#), Sept. 17). The bipartisan measure would also create a \$300 million yearly infrastructure grant program for the Northeast Corridor, conditioned on matching money from the states along the route, according to the National Association of Railroad Passengers, an advocacy group that backs increased Amtrak funding.

## TRANSIT:

### FTA splits \$100M among 24 bus projects

Sean Reilly, E&E reporter

Published: Monday, October 27, 2014

Transit systems in San Diego; Detroit; and Louisville, Ky., are among two dozen that will split \$100 million for bus projects, federal officials formally announced today.

In a *Federal Register* [notice](#) following up on an earlier [news release](#), the Federal Transit Administration said that the winning projects were culled from 282 proposals seeking a total of \$1.4 billion.

The money will be used to help "purchase, replace, or rehabilitate buses, bus facilities and bus-related equipment," the notice said.

The money comes from savings recovered from projects previously funded through SAFETEA-LU, the 2005 highway and transit funding law, as well as the Ladders of Opportunity program geared to connecting low-income and disadvantaged people with schools, jobs and health care, according to the agency. Award decisions were based on criteria laid out in an August notice of funding availability.

Of the \$100 million total, almost \$26 million will go to the city of Detroit to buy up to 50 hybrid and "clean diesel" buses, according to the release. The San Diego Metropolitan Transit System will receive about \$18 million to buy buses running on compressed natural gas, and Louisville's River City Transit Authority, which also serves some Indiana residents, will get \$8.7 million for general bus replacement.

The Central Florida Regional Transportation Authority in Orlando is in line for almost \$9.4 million to build a bus transfer center and to replace up to 10 diesel buses with compressed natural gas vehicles, the release said. Other recipients include the Muckleshoot Indian Tribe in Washington state, the San Francisco Municipal Transportation Agency, and the Alaska Department of Transportation and Public Facilities.

## ALTERNATIVE FUELS:

### Car companies shift to hydrogen fuel cells

Published: Monday, October 27, 2014

Car companies are taking a gamble by introducing vehicles run on hydrogen fuel-cell technology.

Toyota Motor Corp., which is known for its gas-electric Prius hybrids, is planning to implement hydrogen fuel-cell technology instead of batteries in its next generation of green vehicles.

"Today, Toyota actually favors fuel cells over other zero-emission vehicles, like pure battery electric vehicles," said Craig Scott, Toyota's national manager of advanced technologies. "We would like to be still selling cars when there's no more gas. And no one is coming to our door asking us to build a new electric car."

Like electric cars, hydrogen fuel-cell cars are expensive, and so is the infrastructure to refuel them. Another hurdle for the pro-hydrogen fuel group is the lack of fueling stations available for the cars. Experts said that unless there's a proven demand for the vehicles, fuel station operators aren't willing to build the fueling infrastructure.

California has set a goal of having 1.5 million zero-emission cars on the road by 2025. The state subsidizes hydrogen cars by providing a \$5,000 rebate to owners and a \$2,500 rebate to those who buy electric cars. New fuel-cell buyers also qualify for a \$4,000 federal rebate until the end of this year.

General Motors Co. and Ford Motor Co. are both in the process of developing hydrogen fuel-cell vehicles, as well (Charles Fleming, *Los Angeles Times*, Oct. 26). -- MH

## AIR POLLUTION:

### Smog chokes New Delhi after Diwali festival

Published: Monday, October 27, 2014

Levels of air pollution in New Delhi were 10 times the amount recommended by the World Health Organization following the celebrations of the Diwali festival last week.

Millions of Indians set off fireworks and firecrackers to celebrate the annual festival in the nation's capital.

Last Friday, the day after Diwali, the level of pollution was raised to "severe," according to a new air quality index that was introduced earlier this month as part of Prime Minister Narendra Modi's "Clean India" initiative. Officials said it would take more than a day for the air to clear.

In May, the WHO found that New Delhi's atmosphere is the most polluted in the world after studying 1,600 cities across 91 countries. Indian officials disputed the claim.

"Modi can ask but nobody listens on Diwali," said Riddhima Gill, a Delhi resident. "When you find your car with a layer of grime the next day, you know you're inhaling poison. Bursting crackers, the noise, the smog is all part of the so-called Diwali tradition. Modi's 'Clean India' can't change mindsets overnight" (*Malay Mail*, Oct. 26). -- MH

## EMISSIONS:

### EDF's Brownstein discusses future of methane regulations, state-level action

Published: Monday, October 27, 2014

With several states taking steps to address methane emissions from oil and natural gas systems, is a federal policy on methane needed? During today's OnPoint, Mark Brownstein, associate vice president and chief counsel of the U.S. Energy and Climate Program at the Environmental Defense Fund, explains why he believes U.S. EPA should move to regulate methane emissions under the Clean Air Act, despite a reported drop in emissions between 2012 and 2013.

[Click here](#) to watch today's OnPoint.

CLIMATEWIRE — Tue., October 28, 2014

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Continuing to pump greenhouse gases into the atmosphere will trigger "severe, pervasive and irreversible impacts for people, species and 27 ecosystems," concludes a landmark draft U.N. science report expected to be approved this week.

**2. POLITICS:****Could a Republican Senate derail Obama's climate agenda?**

With only a week to go before the 2014 midterm elections, polling from key battleground states indicates a small but widening advantage for Republicans. A six-seat net gain in the Senate would put both chambers of Congress under GOP control, uniting the two houses in opposition to many of the hallmark policies of the Obama presidency, including rules to curb carbon emissions from the nation's power sector.

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A relatively small coal-fired power plant on the southern shore of Lake Superior is at the center of a bitter dispute between Michigan and Wisconsin over who pays almost \$100 million a year to keep it running. The battle has escalated in recent weeks, with interests in both states -- including utility regulators -- insisting that they pay no more than their fair share.

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**COMMENTS OF THE  
AMERICAN FUEL & PETROCHEMICAL MANUFACTURERS  
AND THE AMERICAN PETROLEUM INSTITUTE**

***Regulation of Fuels and Fuel Additives: RFS Pathways II and  
Technical Amendments to the RFS 2 Standards***  
**Docket ID No. EPA-HQ-OAR-2012-0401**

The American Fuel & Petrochemical Manufacturers (AFPM)<sup>1</sup> and the American Petroleum Institute (API)<sup>2</sup> submit these comments in response to the Environmental Protection Agency's (EPA or Agency) proposed rule entitled *Regulation of Fuels and Fuel Additives: RFS Pathways II and Technical Amendments to the RFS 2 Standards*.<sup>3</sup> As manufacturers of liquid transportation fuels, as well as producers and importers of renewable fuels, AFPM and API members are directly regulated by the Proposed Rule. AFPM and API members also are impacted on a competitive basis, as EPA's regulations to implement the Renewable Fuel Standard (RFS), E15 misfueling mitigation and ultra-low sulfur requirements for diesel fuel (ULSD) impact the demand for transportation fuels.

EPA proposes several amendments to the RFS intended to expand the definition of qualifying cellulosic biofuels, allowing:

- 100% of the volume of renewable fuel produced from specific cellulosic feedstocks to qualify for cellulosic RINs,
- Biogas and fuels derived from landfill biogas (renewable electricity, CNG/LNG, naphtha and renewable diesel) to qualify for cellulosic RINs, and
- A new pathway categorizing corn butanol as advanced biofuel.

As the analysis that follows shows, there are legal and scientific concerns with this proposed rulemaking. AFPM and API object to EPA's justification of the proposed new pathways. The proposal has significant scientific gaps. EPA ignored variability in literature data, used overly optimistic assumptions and wrong baselines in their lifecycle analysis (LCA) calculations, and in many cases made assertions without any supporting data.

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<sup>1</sup> AFPM is a trade association representing high-tech American manufacturers of virtually the entire U.S. supply of gasoline, diesel, jet fuel, other fuels and home heating oil, as well as the petrochemicals used as building blocks for thousands of products vital to everyday life.

<sup>2</sup> API is the national trade association representing all segments of the U.S. oil and natural gas industry. Its more than 500 members – including large integrated companies, exploration and production, refining, marketing, pipeline, and marine businesses, and service and supply firms – provide most of the nation's energy. Since 2000, the industry has invested over \$2 trillion in U.S. capital projects to advance all forms of energy, including alternatives.

<sup>3</sup> 78 *Federal Register* 36042 (June 14, 2013)

Based on data and scientific analysis and reasons detailed in these comments, EPA should not permit non-lignocellulosic fractions of specific cellulosic feedstocks to qualify for cellulosic RINs, nor should biogas and fuels derived from landfill biogas (renewable electricity, CNG/LNG, naphtha and renewable diesel) qualify for cellulosic RINs. Additionally, corn starch butanol should not be provided a pathway for generating advanced biofuel RINs, nor should butanol be granted special treatment with regards to volatility requirements.

For these reasons and others detailed in our comments, EPA should withdraw the proposed new RFS pathways and re-assess them consistent with the statutory definitions using lifecycle analysis based on consistent sound science data, using a range of realistic scenarios and addressing uncertainty.

In this rulemaking proposal, EPA is also proposing changes, corrections, and clarifications to existing rules. We recommend that EPA incorporates our input before finalizing those provisions of the proposed rule, including:

- Ensuring consistency with existing guidance on the definition of Responsible Corporate Officer and preserving the delegation of authority flexibility
- Avoiding the premature cancellation of a party's registration
- Maintaining current regulatory language regarding prohibited acts, and preventing the creation of another category of violation for RINs that are "available for use for compliance purposes."
- Maintaining current regulatory language and not imposing the proposed new requirement that foreign renewable fuel producers who sell to importers be subject to U.S. jurisdiction and post a bond, or imposing new bond requirements on importers of renewable fuels. These proposed requirements, if finalized, would likely have a significant adverse impact on renewable fuel imports into the US exacerbating the blend wall situation and adversely impacting the availability of advanced renewable fuels. Such requirements are entirely unnecessary given that importers that generate RINs are already subject to the current RFS regulations. Furthermore, the EPA proposed RIN Quality Assurance program addresses RIN validity for importers and foreign renewable fuel producers.
- The need to correct a number of errors and omissions in EPA's Product Transfer Document (PTD) language stipulations, if these requirements are to remain.
- Establishing appropriate, effective implementation date. It is unreasonable for EPA to impose the proposed rule changes in 40 CFR 80.1466 retroactively to January 1, 2013.

AFPM and API detail our support for various elements of the proposal, including:

- The deletion of decimal points in different regulatory provisions (e.g. definition of E10 vs. 10.0)
- Allowing product codes on product transfer documents in the E15 misfueling mitigation regulations

- Reducing the minimum number of diesel sulfur samples.

#### **A. Approving Cellulosic Volumes from Cellulosic Feedstock**

EPA does not have the authority to change the definition of clear statutory terms, i.e., cellulosic biofuel. We recommend that EPA re-assesses the pathways consistent with the EISA statutory definitions and uses lifecycle analysis based on consistent sound science data, including addressing uncertainty.

EPA proposes to allow 100% of the volume of renewable fuel produced from specific cellulosic feedstocks to generate D-3 or D-7 RINs depending on the type of fuel. As the analysis that follows shows, this assertion is (a) contrary to the statutory definition of Section 211(o)(1)(E) of the Clean Air Act (CAA) and (b) is unsupported by the scientific data. *We suggest that EPA instead set a default cellulosic content equal to the minimum expected cellulosic content of each biomass feedstock; RIN generators must certify content above the default value. Give the RIN generators the opportunity to petition for a higher percentage. In addition, recognizing a de minimis level, if the cellulosic, hemicellulose, and lignin composition of a given feedstock on an unadjusted basis is 95% or higher, then 100% of the feedstock qualifies to generate D-3 or D-7 RINs.*

#### Legal analysis

EPA proposes to count as cellulosic biofuel 100% of fuels in which “the cellulosic components account for a predominant percentage of the biogenic material in the renewable biomass feedstock used to produce the fuel, even where the non-cellulosic components of the renewable biomass could be reasonably identified or estimated.” EPA, Regulation of Fuels and Fuel Additives: RFS Pathways II and Technical Amendments to the RFS 2 Standards, 78 Fed. Reg. 36,042, 36,047 (June 14, 2013) (“Proposed Rule”). In our view, this proposal should be rejected because it violates both the letter and the spirit of the Clean Air Act (“CAA”).

The CAA defines cellulosic biofuel as “renewable fuel derived from any cellulose, hemicellulose, or lignin that is derived from renewable biomass and that has lifecycle greenhouse gas emissions, as determined by the Administrator, that are at least 60 percent less than the baseline lifecycle greenhouse gas emissions.” 42 U.S.C. § 7545(o)(1)(E). EPA’s proposal that a fuel should be counted as 100% cellulosic biofuel when “cellulosic material makes up a predominant percentage of the organic material from which the fuel is produced,” *id.*, contravenes the statutory definition, which specifies that cellulosic biofuel is a subset of fuels derived from “renewable biomass.” Rather than interpreting ambiguous statutory language, EPA’s proposed approach effectively redefines cellulosic biofuel to include the renewable biomass from which the cellulose, hemicellulose, or lignin was derived. EPA is not authorized to redefine a clear statutory term.

In addition, EPA is not authorized to deem fuel to be cellulosic biofuel based on the intent of the fuel producer. EPA’s proposal states that, “[i]n selecting a cellulosic process, whether based on biochemical or thermo-chemical design, the fuel producer is clearly

demonstrating that its primary intent is to convert the cellulosic portions of the feedstock.” Id. at 36,046. Pursuant to the statutory definition of cellulosic biofuel, what matters is whether the renewable fuel derived from cellulose, hemicellulose, or lignin and has lifecycle greenhouse gas emissions that are at least 60 percent less than baseline emissions. The intent of the fuel producer is simply irrelevant.

Even if the statute were ambiguous, EPA’s proposed definition is unreasonable. EPA suggests that its proposed approach “will avoid the administrative and technical burden on producers and EPA of trying to determine the specific amounts of cellulosic and non-cellulosic materials in the specified high-cellulosic feedstock sources, removing potential difficult and potentially time-consuming and expensive impediment to expansion of the cellulosic biofuel industry.” Id. The D.C. Circuit has already rejected this rationale. In *American Petroleum Institute v. EPA*, 706 F.3d 474 (2013), the D.C. Circuit held that EPA had acted unreasonably in failing to “take neutral aim at accuracy,” id. at 476, and the Court rejected EPA’s claimed justification of promoting growth in the biofuels industry, admonishing that “a broad programmatic objective cannot trump specific instructions,” id. at 479. Here again, EPA cannot sacrifice accuracy for the purpose of saving time or promoting growth in the biofuels industry.

EPA’s 100% rule would artificially inflate the reported amount of cellulosic biofuel produced. For example, EPA recognizes that the “average cellulosic composition” of switchgrass is only 85%, Proposed Rule, 78 Fed. Reg. at 36,045 (Table V.A.-1). EPA nevertheless proposes to count 100% of fuel produced from switchgrass as cellulosic biofuel, id. at 36,047. The “growth in cellulosic biofuel volumes” that EPA envisions will result from its 100% rule, id., is nothing more than a concededly inaccurate inflation of actual cellulosic volumes.

EPA’s alternative “Cellulosic Content Threshold Approach” has the same fundamental flaw. EPA would count as 100% cellulosic biofuel fuels that EPA knows contain a measurable volume that is not “derived from any cellulose, hemicellulose, or lignin” as required by 42 U.S.C. § 7545(o)(1)(E). EPA’s proposed threshold ranges from 70% to 99.9%. Proposed Rule, 78 Fed. Reg. at 36,047. It may be permissible for EPA to recognize a de minimis exception when, for example, at least 95% of the fuel is derived from cellulose, hemicellulose, or lignin. Going beyond a de minimis exception, however, would contravene the statute and violate EPA’s duty to aim at accuracy.

EPA’s “Specified Percentage Approach” is preferable to its other proposals, but still flawed because it lumps together all feedstocks and employs a single threshold based on the average amount of fuel derived from cellulosic sources. Id. at 36,047-48. This could distort incentives to produce the maximum amount of cellulosic biofuel by giving an advantage to feedstocks with lower cellulosic content. A preferable approach would be to set a percentage for each feedstock based on the average composition of each feedstock.

*In sum, the statute clearly requires that cellulosic biofuel be “derived from any cellulose, hemicellulose, or lignin,” as required by 42 U.S.C. § 7545(o)(1)(E). EPA’s proposal to inflate cellulosic biofuel volumes would violate EPA’s obligation to follow clear statutory language, as*

*well is its obligation to “take neutral aim at accuracy.” API v. EPA, 706 F.3d at 476. For these reasons, the proposal should not be adopted.*

#### Cellulosic content in biomass feedstocks varies

In this proposed rulemaking, EPA asserts that “most cellulosic feedstocks consist of approximately 80-95% cellulose, cellulose, hemicellulose, or lignin”, and proposes to “allow 100% of the volume of renewable fuel produced from specific cellulosic feedstock in Table 1 of section 80.1426 to generate D-3 or D-7 RINs (depending on the type of finished fuel)” (Federal Register vol. 78, pg. 36045).

As the analysis below shows, EPA’s assertions are unsupported by science: despite the plethora of literature data, the Agency disregarded cellulosic compositional variability of biomass feedstocks, dismissed classes of data, and provided incorrectly “average” numbers in Table V.A.-1 in the proposed rulemaking (Federal Register vol. 78, pg. 36045).

The Energy Independence and Security Act of 2007 (EISA) defines cellulosic biofuel as “derived from any cellulose, hemicellulose, or lignin that is derived from renewable biomass and that has lifecycle greenhouse gas emissions as determined by the Administrator, that are at least 60 percent less than the baseline greenhouse gas emissions” (CAA §211(o)(1)(E)). Congress’ intent is unambiguous: cellulosic biofuel must be produced only from the cellulose, hemicellulose, or lignin portion of renewable biomass.

There is significant compositional variability of cellulosic-type material in renewable biomass, a fact that is well documented in the public literature included in the Appendix of this document (many of these studies were quoted in the EPA docket EPA-HQ-OAR-2012-0401 for this proposed rulemaking). Most of the references are dated in the 1990s and 2000s, long before EISA was enacted. Congress’ carefully chosen statutory language is clear: only the cellulose, hemicellulose, or lignin portions of renewable biomass are qualified feedstocks for the production of cellulosic biofuels, provided they meet the 60% GHG benefits threshold. This is contrary to EPA’s assertion that the EISA definition of cellulosic biofuel is “flexible.”

In 2007, researchers at the North Central Sun Grant Center at South Dakota State University conducted a meta-analysis of cellulosic content in various biomass feedstocks. Figure 1 below, is based on results from an issued technical report by Lee et. al<sup>1</sup>, this reference is also included in docket EPA-HQ-OAR-2012-0401. The graph below shows significant variability in the amount of cellulose, hemicellulose and lignin in feedstocks such as corn stover, wheat straw, and switchgrass; this important issue of compositional variability was not adequately quantified in the EPA proposal.

We studied the data in docket EPA-HQ-OAR-2012-0401 and plot the average, minimum and maximum cellulosic composition (cellulose plus hemicellulose plus lignin) in these references in Figure 2 below. Data variability within a specific type of biomass feedstock or among different types of biomass feedstocks is significant. As a result, the use of “average” values to describe cellulosic composition in EPA’s proposal is misleading. Furthermore, EPA

incorrectly a) lumped together categories such as wood and branches as one “average” number and b) ignored other categories such as leaves (which have low cellulosic content) and straws.

In addition to the literature data, Figure 2 illustrates EPA’s proposal to allow 100% of the volume of renewable fuel produced to generate cellulosic RINs. The data clearly do not support EPA’s proposal. For the same reasons, the data also do not support EPA’s alternative proposal to allow at least 85% of the volume of renewable fuel produced to generate cellulosic RINs.



Figure 1. Compositional variability in biomass feedstocks, Lee et al. (2007).

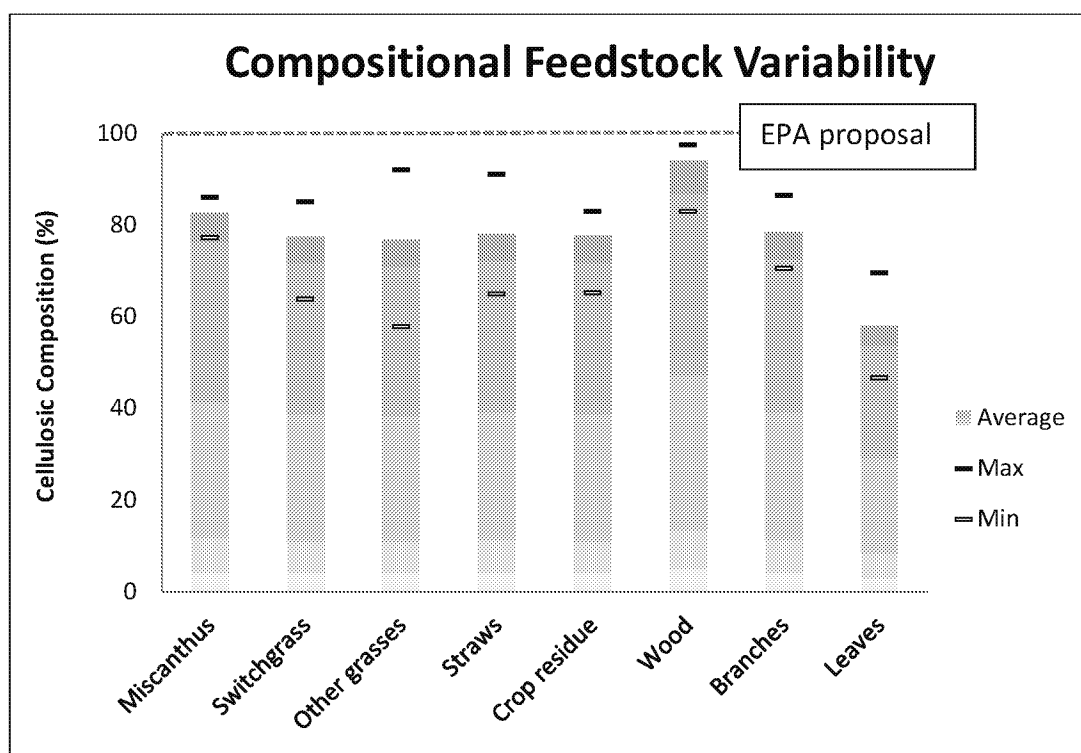


Figure 2 Cellulosic composition of different feedstocks.

*EPA should take into account cellulosic content variability of different feedstocks; D-3 or D-7 RINs should be based only on the cellulose, lignocellulose or lignin material of renewable biomass.*

*We recommend that, based on the literature data (see Figure 1), EPA sets a default lignocellulosic content equal to the minimum expected lignocellulosic content of each biomass feedstock; RIN generators must certify content above the default value. Give the RIN generators the opportunity to petition for a higher percentage. In addition, recognizing a de minimis level, if the cellulose, hemicellulose and lignin composition of a given feedstock on an unadjusted basis is 95% or higher, then 100% of the feedstock qualifies to generate D-3 or D-7 RINs.*

#### Biomass composition measurement methods are available

EPA seeks comments on measurement methods of biomass composition. Currently, reliable analytic tests with relatively low levels of uncertainty measurements do exist as the references below illustrate.

In an NREL study [ref: Compositional Analysis of Lignocellulosic Feedstocks. 2. Method Uncertainties, David W. Templeton, Christopher J. Scarlata, Justin B. Sluiter, And Edward J. Wolfrum, J. Agric. Food Chem. 2010, 58, 9054–9062] chemical compositions of about 150 homogenized corn stover samples in different batches, analysts and laboratories were reported. The study reports measurement uncertainties ranging between 1-3% in major biomass components (lignin, cellulose) and 4-10% uncertainty in lesser components (e.g., whole ash, protein, minor sugars). The variability in measurement methods appears to be lower than feedstock variability (see Figures 1 and 2), suggesting that test variability may not be particularly significant in the context of the RFS2.

A recent paper in Biomass and Biotechnology proposes the use of thermogravimetric analysis (TGA) of plant biomass to determine its composition, over the use of currently used chemical extraction methods [ref: Marion Carrier, Anne Loppinet-Serani, Dominique Denux, Jean-Michel Lasnier, Fr  de  rique Ham-Pichavant, Francois Cansell, Cyril Aymonier, 2011. Thermogravimetric analysis as a new method to determine the lignocellulosic composition of biomass, Biomass and Bioenergy 35; 298-307]. While the variability in composition due to this technique has not been reported in this particular study, this could be the focus of future work if considered a viable alternative.

## **B. Lifecycle Greenhouse Gas Emissions Analysis for Renewable Electricity, Renewable Diesel and Naphtha Produced from Landfill Biogas**

### **B.1. Determination of Landfill Biogas as Cellulosic Fuel Type**

EPA asserts that fuels produced from landfill biogas qualify to generate cellulosic D-3 or D-7 RINs.

According to EISA, biogas is listed as “advanced biofuel”, provided that lifecycle analysis results in at least 50% lower GHGs than baseline. Per CAA §211(o)(1)(B)(ii)(V), “biogas (including landfill gas and sewage waste treatment gas) [is] produced through the conversion of organic matter from renewable biomass.” The renewable biomass definition includes “separated yard waste or food waste, including recycled cooking and trap grease” (CAA §211(o)(1)(I)(vii)). The definition of cellulosic biofuel is provided in Section A of these comments. The analysis below shows that biogas cannot be broadly defined as renewable or cellulosic.

Figure 3 below shows that the quantity of biodegradable materials being disposed of in landfills peaked in 1990, and has been declining ever since. This is a testament to source reduction, recycling, composting and other measures implemented. It is important to note that the quantity of biodegradable materials such as paper and yard trimmings have declined even faster than the overall mix. In fact, the only categories of biodegradable material that have increased since 1990 are food scraps and textiles.

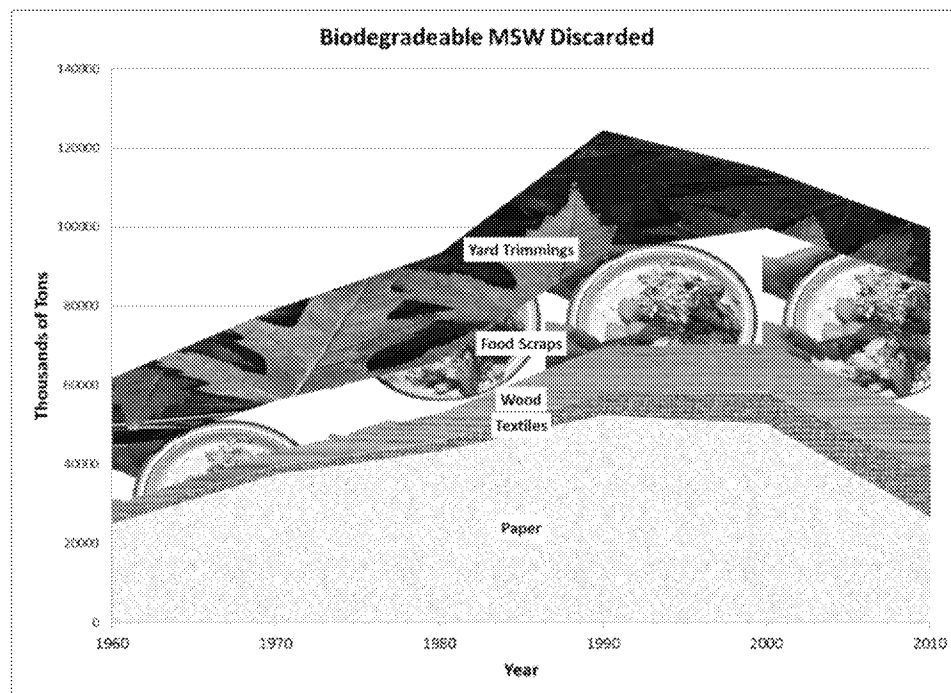


Figure 3. Biodegradable material composition of landfills. Source: EPA - Municipal Solid Waste Generation, Recycling, and Disposal in the United States - Tables and Figures for 2010.

The feedstocks for landfill gas are not being replaced at a rate that is needed to sustain its production. Therefore landfill gas is being mined from prior deposition of MSW, and should not be considered a renewable biomass.



### Landfill gas should not be considered cellulosic

An estimate of the source of landfill gas can be made using data from EPA's Municipal Solid Waste Generation, Recycling and Disposal in the United States – Tables and Figures for 2010 and EPA's Waste Reduction Model (WARM).

Table 1 below shows the calculations based on a 2010 Municipal solid waste mix. Based on this mix, and the methane generation and recovery data in WARM, only about 22% of the methane recovered in a typical landfill comes from Food Scraps and only about 5% comes from Yard Trimmings. This is illustrated in Figure 4 below.

Table 1. Landfill gas composition.

|                             | (a)                                 | (b)                                                              | (c) = (b) / 21                                             | (d)                                                              | (e) = (c) * (d)                                            | (f) = (c) - (e)                                          | (g) = (a) * (c)                             | (h) = (a) * (e)                             | (i) = (a) * (f)                          |                                                        |                                                        |                                                     |
|-----------------------------|-------------------------------------|------------------------------------------------------------------|------------------------------------------------------------|------------------------------------------------------------------|------------------------------------------------------------|----------------------------------------------------------|---------------------------------------------|---------------------------------------------|------------------------------------------|--------------------------------------------------------|--------------------------------------------------------|-----------------------------------------------------|
| Material                    | Thousand Tons Discarded in 2010 (1) | CH <sub>4</sub> Generated MTCO <sub>2</sub> eq/Wet Short Ton (2) | CH <sub>4</sub> Generated MTCH <sub>4</sub> /Wet Short Ton | CH <sub>4</sub> Collection Efficiency - Typical Avg Landfill (3) | CH <sub>4</sub> Recovered MTCH <sub>4</sub> /Wet Short Ton | CH <sub>4</sub> Vented MTCH <sub>4</sub> / Wet Short Ton | CH <sub>4</sub> Generated MTCH <sub>4</sub> | CH <sub>4</sub> Recovered MTCH <sub>4</sub> | CH <sub>4</sub> Vented MTCH <sub>4</sub> | CH <sub>4</sub> Generated MTCH <sub>4</sub> % of Total | CH <sub>4</sub> Recovered MTCH <sub>4</sub> % Of Total | CH <sub>4</sub> Vented MTCH <sub>4</sub> % of Total |
| Paper <sup>1</sup>          | 26740                               | 2.84                                                             | 0.135                                                      | 88%                                                              | 0.119                                                      | 0.0163                                                   | 3622398                                     | 3186396                                     | 436001                                   | 36%                                                    | 40%                                                    | 23%                                                 |
| Textiles <sup>2</sup>       | 11150                               | 4.26                                                             | 0.203                                                      | 87%                                                              | 0.176                                                      | 0.0264                                                   | 2261857                                     | 1967816                                     | 294041                                   | 23%                                                    | 24%                                                    | 15%                                                 |
| Wood                        | 13580                               | 1.30                                                             | 0.062                                                      | 90%                                                              | 0.056                                                      | 0.0062                                                   | 840667                                      | 756600                                      | 84067                                    | 8%                                                     | 9%                                                     | 4%                                                  |
| Food Scraps                 | 33790                               | 1.63                                                             | 0.078                                                      | 66%                                                              | 0.051                                                      | 0.0264                                                   | 2622748                                     | 1731013                                     | 891734                                   | 26%                                                    | 22%                                                    | 47%                                                 |
| Yard Trimmings <sup>3</sup> | 14200                               | 0.88                                                             | 0.042                                                      | 66%                                                              | 0.028                                                      | 0.0143                                                   | 595048                                      | 392596                                      | 202451                                   | 6%                                                     | 5%                                                     | 11%                                                 |
| Total                       | 99460                               |                                                                  |                                                            |                                                                  |                                                            |                                                          | 9942717                                     | 8034422                                     | 1908295                                  | 100%                                                   | 100%                                                   | 100%                                                |

#### NOTES:

1000 Kg

<sup>1</sup> Paper mix based on EPA: Municipal Solid Waste Generation, Recycling, and Disposal in the United States - Tables and Figures for 2010, Table 17, 2009 Data

<sup>2</sup> Per EPA, Textiles methane generation assumed equal to Office Paper

<sup>3</sup> Per EPA, Yard Trimmings assumed to be composed of 50% Grass, 25% Leaves, 25% Branches

#### Sources:

(1) EPA: Municipal Solid Waste Generation, Recycling, and Disposal in the United States - Tables and Figures for 2010, Table 3, 2010 Data

(2) EPA WARM Version 12 Documentation, February, 2012: Landfilling - Exhibit 6

(3) EPA WARM Version 12 Documentation, February, 2012: Landfilling - Exhibit 10, Data for Typical Landfill Scenario, Avg Moisture

Based on these estimates, only about 27% of landfill gas can be considered to be derived from renewable biomass, i.e., “Separated yard waste or food waste, including recycled cooking and trap grease” per CAA definition. Existing landfills containing older waste material would have even a lower percentage of methane generated from food scraps and yard trimmings since proportionally more paper would have been in the waste stream.

EISA classifies fuels derived from landfill gas as advanced biofuels, not as cellulosic biofuels. Furthermore, as discussed above, only about 27% of landfill gas is derived from renewable biomass (yard waste or food waste) as required by EISA. In addition, even this material likely contains non-cellulosic components such as sugars, starches and proteins that will biodegrade to produce methane. Finally, landfill gas likely contains a small amount of methane produced from fossil derived solvent residues in discarded containers and packaging.

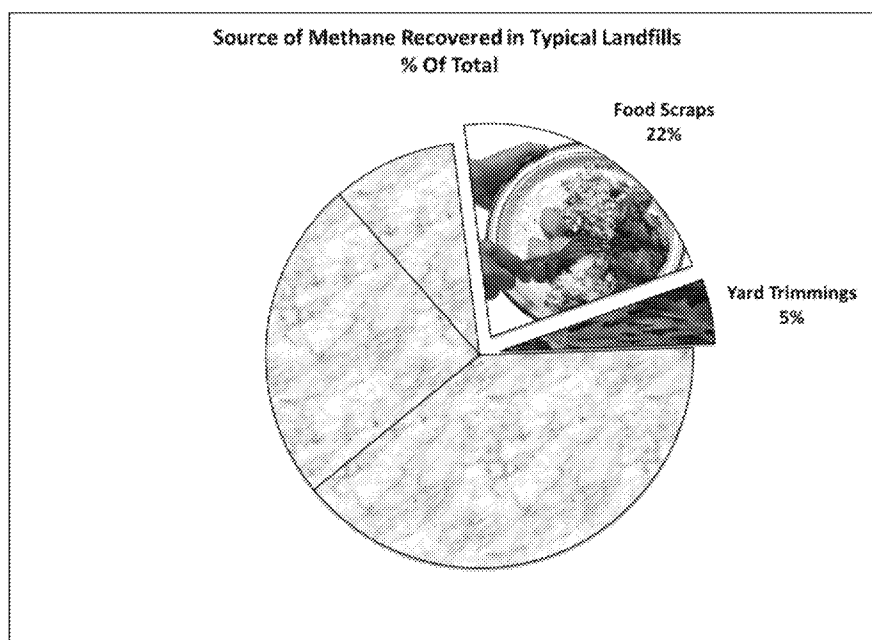


Figure 4. Landfill methane sources in 2010. Source EPA - Municipal Solid Waste Generation, Recycling, and Disposal in the United States - Tables and Figures for 2010.

*The data analysis shows that there is no basis for claiming that landfill gas should be considered cellulosic under the definitions contained in EISA. As such, EPA cannot define landfill biogas as eligible to generate cellulosic D-3 or D-7 RINs.*

The lifecycle GHG analyses for landfill gas derived transportation fuels are incorrect.

LCA analysis for landfill biogas for transportation fuels should begin with waste generation, not with the gas generated once the waste is in a landfill. As shown above, about 40% of the methane collected at a typical landfill is derived from waste paper. Therefore, we will use paper as an illustrative example.

At the point at which the paper has reached the end of its useful life, there are several methods of disposing of it:

- Recycling
- Combusting with energy recovery
- Landfilling

Per EPA's waste management hierarchy, landfilling is the *least* desirable option. Again, we can use EPA's WARM documentation to estimate the GHG benefits associated with recycling, combustion with energy recovery, and landfilling with energy recovery.

Table 2 below shows the data from WARM for Mixed Paper (General). The greatest GHG benefit comes from recycling, with recycling providing a GHG savings of 2.81 (= 3.52 –

0.71) MTCO<sub>2</sub>eq/Ton of mixed paper relative to landfilling with landfill gas recovery and electricity production.

Based on Table 1 above, approximately 0.12 MT of methane is collected for each ton of mixed paper in an average landfill. Using a methane energy content of 47.4 mmBTU/MT, the foregone GHG savings are 494 kg CO<sub>2</sub>eq/mmBTU of landfill methane generated from paper.

Since only about 40% of landfill methane is derived from paper, and assuming no foregone GHG savings for the other landfill components, the foregone GHG savings due to not recycling paper is approximately 196 kg CO<sub>2</sub>eq/mmBTU of landfill methane.

For renewable electricity, this would mean a foregone GHG savings of  $196 / 0.236 = 831$  kg CO<sub>2</sub>eq/mmBTU of electricity, or  $831 / 3 = 277$  kg CO<sub>2</sub>eq / mmBTU fuel equivalent. Compared to 2005 baseline gasoline, this would be an increase of approximately 182%.

Similar results could be expected for renewable diesel and renewable naphtha produced from landfill gas if the foregone GHG savings due to landfilling paper rather than recycling paper were included in the analyses.

*Therefore, it can be seen that if the lifecycle GHG analysis began at the point of waste generation, which it should since we are evaluating landfill gas as a renewable biogas, there is no benefit to producing renewable electricity, renewable diesel or renewable naphtha from landfill gas.*

Table 2. Lifecycle GHG analysis for paper use.

|                                                                            | MTCO <sub>2</sub> eq/Short<br>Ton of Material |
|----------------------------------------------------------------------------|-----------------------------------------------|
| Recycling (1)                                                              | -3.52                                         |
| Combustion to Electricity (2)                                              | -0.49                                         |
| Landfilling w/ Land Fill Gas<br>Recovery and Electricity<br>Generation (3) | -0.71                                         |

Sources:

- (1) EPA WARM Version 12 Documentation, February, 2012: Paper Products - Exhibit 18. Data for Mixed Paper (General)
- (2) EPA WARM Version 12 Documentation, February, 2012: Paper Products - Exhibit 25. Data for Mixed Paper (General)
- (3) EPA WARM Version 12 Documentation, February, 2012: Paper Products - Exhibit 28. Data for Mixed Paper (General)

## B.2. Renewable Electricity

EPA is proposing to “include renewable electricity produced from landfill biogas feedstock in Table 1 to §80.1426 as a cellulosic fuel type ... and that RINs may only be generated for electricity from biogas that can be tracked to use in the transportation sector such as by an electric vehicle” (Federal Register vol. 78, pg. 36045).

As explained in Section A above, EPA cannot redefine the clear statutory term of cellulosic biofuel. Even if a renewable fuel pathway results in 60% or higher reduction in GHG emissions, EPA is not authorized to deem such fuel cellulosic, unless it is produced from cellulose, hemicellulose, or lignin derived from renewable biomass. Our data analysis in Section B.1 above does not justify biogas as “cellulosic feedstock”; therefore, renewable electricity from biogas is not cellulosic fuel eligible to generate cellulosic RINs.

Furthermore, there is an additional fundamental concern with this proposal. As EPA states, “Landfills can generate electricity by combustion of the methane in their biogas...once generated, the electricity enters the electric grid.” Net GHG environmental benefits from this electricity generation process would be assessed and tracked by EPA’s tailoring rule. We agree with OMB, who pointed out this issue in its comments to the EPA during the interagency review of this proposed rule.

*The scheme proposed by EPA is particularly troubling, as it could potentially result in proliferation of invalid RINs. EPA’s recently proposed rulemaking “RFS Renewable Identification Number (RIN) Quality Assurance Program” (Federal Register, vol. 78, pages 12158-12217) does not address the issue of RIN validity for biogas and renewable electricity produced and used for transportation.*

How does one know that the renewable electricity is not displacing other renewable or low carbon electricity in the grid (solar, wind, hydro, natural gas, nuclear)? Further, how does one account for down time at the landfill generating station? Even in the case when 100% of the electricity generated by the landfill facility is used to charge electric vehicles directly at the plant, how are these RINs separated, validated, and transferred to the obligated parties for compliance? This proposal, if finalized, has the potential to result in invalid RINs similar to the issue with fraudulent biodiesel RINs in 2011-2012, as a result of biodiesel producers’ ability to separate RINs provided they are introduced in the transportation sector as neat fuel.

Notwithstanding the discussion in the previous section regarding the high GHG emissions that should be included in landfill gas for not recycling paper, if the landfill gas displaces other renewable electricity, such as from wind or solar, there should be no RINs available.

Finally, Table 3 below shows two possible pathways for electricity generated from landfill gas and the use of electricity in electric vehicles; the Table uses EPA’s data. Pathway 1 supplies electricity from the plant directly to electric vehicles, as would be the case with a contract. Pathway 2 supplies electricity into the grid, where it displaces grid electricity used for non-transportation purposes. At some other point, a user uses grid electricity to power electric vehicles. Note that in both cases the GHG emissions are equivalent. There is no change in GHG emissions because of the existence of a contract between the two parties, and so no RINs should be generated.

Consider the case of a landfill that is already generating renewable electricity from landfill gas. With the increasing availability of PHEVs and EVs, it is likely that at least some of this electricity is going to charge these vehicles. However, if the landfill now signs contracts

with these users, although there is no change in GHG emissions, RINs would be allocated to the landfill.

Table 3. Renewable electricity pathway comparison.

|                                             | Data from Table V.B.-2                         |                                                     | Pathway 1:<br>Renewable<br>Electricity to<br>EV     | Pathway 2:<br>(a)Renewable<br>Electricity to<br>Grid<br>(b)Grid to EV |
|---------------------------------------------|------------------------------------------------|-----------------------------------------------------|-----------------------------------------------------|-----------------------------------------------------------------------|
|                                             | kg CO <sub>2</sub> eq/<br>mmBtu<br>electricity | kg CO <sub>2</sub> eq/<br>mmBtu fuel<br>equivalent* | kg CO <sub>2</sub> eq/<br>mmBtu fuel<br>equivalent* | kg CO <sub>2</sub> eq/<br>mmBtu fuel<br>equivalent*                   |
| Renewable Electricity                       | 12                                             | 4                                                   | 4                                                   | 4                                                                     |
| U.S. Average Grid Electricity               | 220                                            | 73                                                  |                                                     | 73                                                                    |
| 2005 Baseline Gasoline                      | N/A                                            | 98                                                  |                                                     |                                                                       |
| <b>TOTAL Emissions</b>                      |                                                |                                                     | <b>4</b>                                            | <b>77</b>                                                             |
| <b>Base Emissions</b>                       |                                                |                                                     |                                                     |                                                                       |
| Electricity                                 |                                                |                                                     | N/A                                                 | 73                                                                    |
| Gasoline                                    |                                                |                                                     | 98                                                  | 98                                                                    |
| <b>Total Base GHG Emissions</b>             |                                                |                                                     | <b>98</b>                                           | <b>171</b>                                                            |
| <b>Renewable Electricity / EV Emissions</b> |                                                |                                                     | <b>4</b>                                            | <b>77</b>                                                             |
| <b>GHG Emissions Change</b>                 |                                                |                                                     | <b>-94</b>                                          | <b>-94</b>                                                            |

### B.3. Renewable Diesel and Naphtha

EPA is also proposing to “add renewable diesel produced from landfill biogas via the Fischer-Tropsch process as an approved advanced and/or biomass-based diesel biofuel and naphtha produced from landfill biogas via the Fischer-Tropsch (F-T) process as an approved advanced biofuel. If the Fischer-Tropsch facilities produce at least 20% of their electricity demand at the facility from certain allowed sources, the renewable diesel and naphtha would be further quality as cellulosic biofuels” (Federal Register vol. 78, pg. 36045).

The LCA basis for the new biogas diesel and naphtha pathways should include uncertainty, especially since the EPA calculated reductions in Table V.B.-3 are 52% and 51% respectively vs. baseline gasoline. These numbers are based on the assumptions that there are no fugitive emissions in the F-T plant and there are significant co-product credits for produced wax. EPA admits that the wax produced via this pathway will not displace fossil fuels.

Again, EPA is making optimistic assumptions that result in LCA calculations *barely* meeting the 50% GHG threshold reduction; in the process, EPA dismisses realistic scenarios and fails to quantify range of LCA uncertainty in the analysis.

*We recommend that EPA quantifies the co-product credit and includes realistic assumptions and assesses the range of uncertainty in the LCA.*

## C. Proposed Regulatory Amendments Related to Biogas

### C.1. Changes Applicable to the Revised CNG/LNG Pathway from Biogas

Similar to the renewable electricity issues, we are concerned about EPA's proposed pathway for cellulosic and/or advanced CNG/LNG RINs from biogas. In addition to the issue with definition of cellulosic fuels, it will be very difficult to track the CNG/LNG molecules in the transportation sector and ensure the validity of these RINs.

*As discussed in the case of renewable electricity from biogas, EPA's proposed pathway for CNG/LNG is similarly troubling and could result in proliferation of invalid RINs. EPA's recently proposed rulemaking "RFS Renewable Identification Number (RIN) Quality Assurance Program" (Federal Register, vol. 78, pages 12158-12217) does not address the issue of RIN validity for biogas and CNG/LNG produced and used for transportation.*

## D. Amendment to the Definition of "Crop Residue" and Definition of a Pathway for Corn Kernel Fiber

EPA is amending the definition of "left over" in the original definition of crop residue "to indicate that the use of residue as a biofuel feedstock should not increase demand for the crop it is derived from, should not induce further crop production, and should not result in additional direct or indirect GHG emissions."

EPA is seeking comments on whether to classify the following as crop residue (Table IV.D.-1 in proposed rulemaking): sugarcane bagasse, corn kernel fiber, corn stover, citrus residue, rice straw and wheat straw. The Agency offers no data to support the case that these feedstocks would have similar direct and indirect effects as corn stover.

- Reference to changes in crop demand due to residue harvesting appears to contradict EPA's earlier modeling results in the RFS2 Regulatory Impact Analysis (RIA) (2010). EPA's economic modeling in the RFS2 RIA, suggests that the use of e.g., corn stover for cellulosic ethanol production increases the profitability of the corn crop, thus resulting in a slight increase in domestic corn production. How will EPA determine if any increase in crop production is a result of demand created for the crop's residue via the RFS2, or due to other reasons (such as an increase in food demand)? Is there a particular threshold below which the EPA suggests that any increase in crop production is considered negligible?

*We recommend that EPA outlines the methodology it plans to use to satisfy the proposed new crop residue definition, including a potential threshold below which additional crop production is considered negligible. EPA should apply this new methodology to feedstocks before qualifying them as crop residue.*

- Eligibility for D-3 cellulosic RINs. Whether the newly added feedstocks in Table IV.D.-1 are cellulosic will depend on their composition of cellulose, lignocellulose, or lignin. See section A. above. For example, according to data in the EPA docket, rice straw contains 74% cellulosic components.

*We recommend that EPA amends the definition of crop residue to explicitly exclude the corn starch and other non-cellulosic components.*

- In the proposed rulemaking EPA assumes that ethanol produced from other crop residues has carbon intensity equivalent to corn stover based ethanol but offers no quantitative analysis to support this assertion.

The life cycle GHG emissions associated with corn stover based ethanol are specific to particular volumes of stover based-ethanol production and biofuel production from other sources such as corn, switchgrass and soybean (as determined by economic and environmental life cycle modeling summarized in the RFS2 RIA.) Within this modeling framework, the total demand for cellulosic ethanol is kept constant (at the 2022 target); allowing an increase in ethanol production from residues other than corn stover is likely to affect volumes of ethanol produced from switchgrass and corn stover. These interactions, if deemed important, are not sufficiently captured in the current assumption where ethanol from other residues has a carbon intensity equivalent to stover based ethanol.

*We recommend that EPA conducts further modeling to ascertain whether carbon intensities are likely to be similar, given more appropriate assumptions/projections relating to other crop residues, including feasible production volumes.*

- Corn kernel fiber

EPA proposes to include corn kernel fiber as a crop residue and qualify for cellulosic RINs under the RFS2. Per EPA, this fiber will be extracted from “matter that is otherwise converted to dried distillers grains (DDG) during the dry mill corn ethanol process.” DDG production is assumed to replace corn as animal feed in certain scenarios, resulting in reduced emissions from the domestic livestock sector. These emissions reductions (credits) are currently allocated to ethanol produced from corn. If this corn kernel fiber will be used to produce ethanol that falls under the cellulosic/advanced category instead, the emissions credit allocated to corn ethanol production will likely change (depending on the substitutability of low fiber DDG and DDG in different markets), thus changing the CI of corn ethanol. No quantitative treatment of this effect has been summarized in the current amendment.

*We recommend that EPA conduct additional modeling to examine potential economic and environmental trade-offs between the use of corn kernel fiber for ethanol and animal feed. This will likely provide additional guidance to RIN generators of ethanol from the two interdependent ethanol pathways (corn starch and corn kernel fiber to ethanol).*

## E. Considerations of Advanced Butanol Pathway

### E.1. Proposed New Pathway

EPA proposes to add a new pathway that allows butanol from corn starch to qualify as advanced biofuel using a combination of advanced technologies to meet the 50% GHG emissions reduction threshold. “The technologies targeted to produce corn butanol are primarily being targeted at retrofitting existing corn ethanol facilities, where the infrastructure to produce renewable fuels already exists and the capital expenditures would be relatively small”. EPA further states that existing agricultural sector modeling analyses for corn as feedstock remain valid...”

Since EPA’s earlier LCA modeling assumptions remain valid, we reproduce below in Table 4 EPA’s analysis for corn butanol from docket EPA-HQ-OAR-2005-0161-3173.

Table 4. Corn butanol GHG reductions vs. gasoline (EPA-HQ-OAR-2005-0161-3173)

|                  |                                                                            | Percent Reduction Lifecycle GHG Emissions |          |          |          |          |          |          |          |          |
|------------------|----------------------------------------------------------------------------|-------------------------------------------|----------|----------|----------|----------|----------|----------|----------|----------|
|                  |                                                                            | 2022                                      |          |          | 2017     |          |          | 2012     |          |          |
|                  | Time Horizon<br>Discount Rate<br>Range                                     | 30<br>0%                                  | 30<br>0% | 30<br>0% | 30<br>0% | 30<br>0% | 30<br>0% | 30<br>0% | 30<br>0% | 30<br>0% |
|                  |                                                                            | Low                                       | Mean     | High     | Low      | Mean     | High     | Low      | Mean     | High     |
|                  |                                                                            |                                           |          |          |          |          |          |          |          |          |
| Dry Mill NG      | Base Plant (dry DDGS)                                                      | -35%                                      | -27%     | -16%     | -22%     | -7%      | 10%      | -7%      | 12%      | 34%      |
| Dry Mill NG      | and Fractionation (dry DDGS)                                               | -37%                                      | -28%     | -17%     | -23%     | -9%      | 9%       | -8%      | 10%      | 32%      |
| Dry Mill NG      | , Fractionation and Membrane Separation (dry DDGS)                         | -40%                                      | -32%     | -21%     | -27%     | -13%     | 5%       | -12%     | 6%       | 28%      |
| Dry Mill NG      | , Fractionation, Membrane Separation, and Raw Starch Hydrolysis (dry DDGS) | -45%                                      | -36%     | -25%     | -32%     | -17%     | 0%       | -17%     | 1%       | 23%      |
| Dry Mill NG      | Base Plant (wet DGS)                                                       | -46%                                      | -37%     | -27%     | -33%     | -19%     | -1%      | -19%     | 0%       | 22%      |
| Dry Mill NG      | and Fractionation (wet DGS)                                                | -45%                                      | -36%     | -25%     | -32%     | -17%     | 1%       | -17%     | 1%       | 24%      |
| Dry Mill NG      | , Fractionation and Membrane Separation (wet DGS)                          | -48%                                      | -39%     | -29%     | -36%     | -21%     | -3%      | -21%     | -3%      | 19%      |
| Dry Mill NG      | , Fractionation, Membrane Separation, and Raw Starch Hydrolysis (wet DGS)  | -51%                                      | -42%     | -31%     | -38%     | -24%     | -6%      | -24%     | -6%      | 16%      |
| Dry Mill Coal    | Base Plant (dry DDGS)                                                      | -7%                                       | 2%       | 12%      | 9%       | 23%      | 41%      | 26%      | 44%      | 67%      |
| Dry Mill Coal    | and Fractionation (dry DDGS)                                               | -14%                                      | -5%      | 5%       | 1%       | 16%      | 34%      | 18%      | 37%      | 59%      |
| Dry Mill Coal    | , Fractionation and Membrane Separation (dry DDGS)                         | -22%                                      | -13%     | -2%      | -7%      | 8%       | 25%      | 9%       | 28%      | 50%      |
| Dry Mill Coal    | , Fractionation, Membrane Separation, and Raw Starch Hydrolysis (dry DDGS) | -30%                                      | -22%     | -11%     | -16%     | -2%      | 16%      | -1%      | 18%      | 40%      |
| Dry Mill Coal    | Base Plant (wet DGS)                                                       | -28%                                      | -20%     | -9%      | -14%     | 0%       | 18%      | 1%       | 20%      | 42%      |
| Dry Mill Coal    | and Fractionation (wet DGS)                                                | -30%                                      | -21%     | -10%     | -16%     | -1%      | 17%      | 0%       | 18%      | 41%      |
| Dry Mill Coal    | , Fractionation and Membrane Separation (wet DGS)                          | -37%                                      | -29%     | -18%     | -24%     | -9%      | 8%       | -9%      | 10%      | 32%      |
| Dry Mill Coal    | , Fractionation, Membrane Separation, and Raw Starch Hydrolysis (wet DGS)  | -43%                                      | -34%     | -23%     | -30%     | -15%     | 3%       | -15%     | 3%       | 26%      |
| Dry Mill Biomass | Base Plant (dry DDGS)                                                      | -58%                                      | -50%     | -39%     | -47%     | -32%     | -14%     | -33%     | -15%     | 8%       |
| Dry Mill Biomass | and Fractionation (dry DDGS)                                               | -56%                                      | -48%     | -37%     | -44%     | -30%     | -12%     | -31%     | -12%     | 10%      |
| Dry Mill Biomass | , Fractionation and Membrane Separation (dry DDGS)                         | -56%                                      | -47%     | -36%     | -44%     | -29%     | -11%     | -30%     | -12%     | 11%      |
| Dry Mill Biomass | , Fractionation, Membrane Separation, and Raw Starch Hydrolysis (dry DDGS) | -56%                                      | -47%     | -37%     | -44%     | -29%     | -12%     | -30%     | -12%     | 10%      |
| Dry Mill Biomass | Base Plant (wet DGS)                                                       | -59%                                      | -50%     | -40%     | -47%     | -33%     | -15%     | -34%     | -16%     | 7%       |
| Dry Mill Biomass | and Fractionation (wet DGS)                                                | -57%                                      | -48%     | -37%     | -45%     | -30%     | -12%     | -31%     | -13%     | 10%      |
| Dry Mill Biomass | , Fractionation and Membrane Separation (wet DGS)                          | -56%                                      | -48%     | -37%     | -44%     | -30%     | -12%     | -31%     | -12%     | 10%      |
| Dry Mill Biomass | , Fractionation, Membrane Separation, and Raw Starch Hydrolysis (wet DGS)  | -56%                                      | -48%     | -37%     | -44%     | -30%     | -12%     | -31%     | -12%     | 10%      |
| Wet Mill         | with NG                                                                    | -37%                                      | -28%     | -17%     | -26%     | -11%     | 7%       | -13%     | 5%       | 28%      |
| Wet Mill         | with coal                                                                  | -16%                                      | -8%      | 3%       | -5%      | 9%       | 27%      | 7%       | 26%      | 48%      |
| Wet Mill         | with biomass                                                               | -67%                                      | -58%     | -48%     | -56%     | -42%     | -24%     | -44%     | -25%     | -3%      |



EPA's own data above clearly show that, including uncertainties in GHG reductions, corn butanol currently (year 2012) does not meet the 50% threshold, regardless of the biorefinery configurations. Similar conclusions are reached for 2017.

#### LCA calculation year and uncertainty

EPA's LCA calculation should be consistent with statements in the proposed rule that corn butanol production will target retrofitting existing corn ethanol facilities where infrastructure to produce renewable fuels already exists and capital expenditures are relatively small. Similarly, according to the preamble, existing agricultural modeling analyses also apply.

In this proposed rule, however, EPA bases its LCA calculations on GHG estimates for 2022, and not for 2012. Furthermore, the LCA basis for the new corn butanol pathway does not include uncertainty, unlike EPA's analysis in the 2010 RFS2 final rule.

Figure 5 below compares data from EPA's docket EPA-HQ-OAR-2005-0161-3173 used in the development of the RFS2 final rule in 2010. The new proposed butanol pathway is clearly marked on the graph. The year for which LCA analysis has been carried out is indicated on the graph, e.g. 2012. The dashed line represents the threshold of 50% reduction in carbon intensity vs. gasoline required in the definition of advanced biofuels. Note that EPA assessed uncertainty (indicated by the error bars on the graph) in the RFS2 final rule, but not in this proposed rulemaking. This is a significant omission.

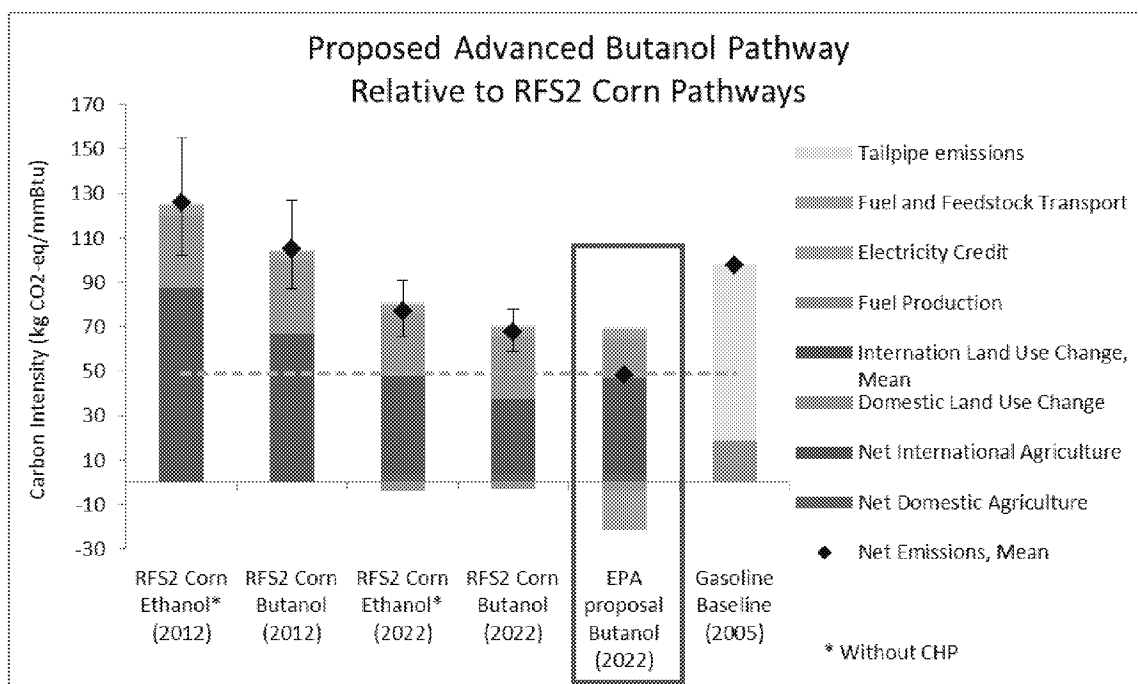


Figure 5. Comparisons of LCA analysis data: RFS2 EPA docket and new proposed butanol pathway.

EPA states that butanol is not expected to increase corn demand, but provides no evidence for this assertion. If butanol, however, is classified as an advanced renewable fuel, it

could replace some of the imported sugarcane ethanol that EPA includes in their estimates. This could increase U.S. corn demand, decrease sugarcane ethanol demand, and affect the land use modeling in LCA calculations.

*We recommend that EPA 1) bases the new corn butanol LCA pathway on its earlier GHG data for agricultural practices and biorefinery configurations applicable to year 2012, 2) includes uncertainties in land use the same way it did for RFS2 final rule, 3) clearly explains any deviations from these earlier numbers, and 4) quantifies the impact of butanol on corn demand. 2022 projections are not applicable in this case.*

#### Electricity credit

As shown in Table V.F-1 (Federal Register, vol. 78, page 36059), EPA's proposal includes a significant emissions credit from electricity that offsets all other emissions from fuel production. The process description says that a combination of natural gas and biomass derived biogas will be used to power the plant. How biogas treated in this analysis is unclear - additional information on this issue is needed. It is important to note that the calculated GHG emissions *barely* meet the 50% reduction threshold for advanced biofuel. Ensuring that all fuel produced meets the GHG reduction at all times and generates valid RINs will be very sensitive to plant operations and production fuel. This issue also needs to be addressed.

The practice of qualifying a fuel as Advanced based solely on an electricity credit incentivizes the use of a feedstock with high land use change impacts and opens up the possibility for even greater impacts in the future if other similar pathways are approved.

#### Butanol Lower Heating Value

Several references for the lower heating value (LHV) of butanol indicate that the value used by EPA in this analysis (99,837 Btu/gal) may be high. Shown in the table below are values found in various publications, the difference between the published value and the value used in the EPA analysis, and the resulting implied GHG impact (proportionally increased to account for lower LHV). With these lower LHV values, the proposed pathway does not meet the threshold to qualify as an advanced biofuel (49 kg CO<sub>2</sub>-eq / mmBtu = 50% of 2005 gasoline baseline).

Table 6. Butanol Lower Heating Values (LHV)

| Source of LHV Value           | LHV, Btu/gal | Delta vs. EPA Proposal | Implied kg CO <sub>2</sub> -eq/mmBtu |
|-------------------------------|--------------|------------------------|--------------------------------------|
| GREET (used in proposed rule) | 99,837       |                        | 48                                   |
| Butamax <sup>1</sup>          | 95,506       | -4%                    | 50                                   |
| BP <sup>2</sup>               | 96,763       | -3%                    | 50                                   |
| GHGenius <sup>3</sup>         | 93,500       | -6%                    | 51                                   |

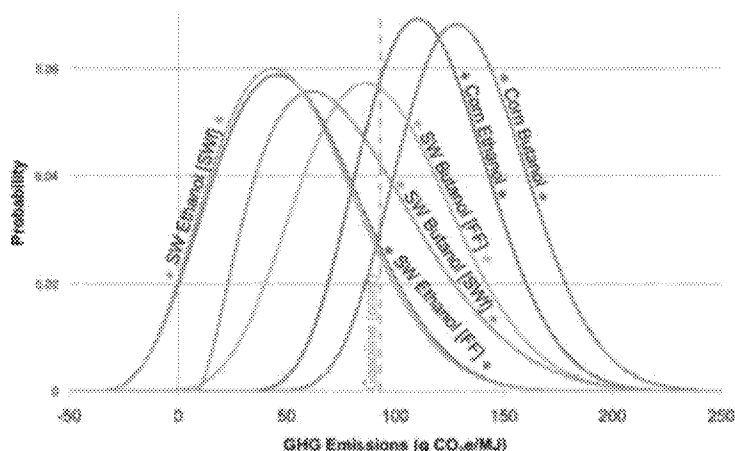
<sup>1</sup> P. Beckwith, "Delivering the Renewable Fuels Aspiration: The Role of Biobutanol", Next Generation Biofuels Conference, [http://www.butamax.com/assets/pdf/fo\\_lights\\_next\\_generation\\_biofuels\\_conference\\_february\\_2011.pdf](http://www.butamax.com/assets/pdf/fo_lights_next_generation_biofuels_conference_february_2011.pdf)

<sup>2</sup> BP, "1-Butanol as a Gasoline Blending Bio-component", EPA Mobile Sources Technical Review Subcommittee Meeting, March 2007", <http://www.epa.gov/air/caaac/mstrs/March2007/Wolf.pdf>

<sup>3</sup> Tool used in lifecycle analysis assessments by Canadian federal and provincial jurisdictions

### Butanol production yields:

Typically, yields of butanol from corn processes are significantly lower than ethanol yields. The graph reproduced below from the National Academy of Sciences report “Renewable Fuel Standard Potential Economic and Environmental Effects of U. S. Biofuels Policy” indicates that corn butanol production is generally more emissions intensive than corn ethanol, yet the life cycle analysis for corn butanol assumes equivalent agriculture and land use change emissions impacts to corn ethanol. Specific yield assumptions are not clear from data published in this EPA proposed rulemaking.



**FIGURE 5-3** Probability distributions for U.S. industry greenhouse-gas (GHG) emissions for corn and switchgrass (SW) biofuels. [FF] refers to the burning of fossil fuels at the biorefinery, while [SWF] refers to the combustion of switchgrass for heat and electricity.  
NOTE: Uncertainties in GHG emissions from land-use changes contribute most to the extending range of estimates for life-cycle GHG emissions from biofuels.  
SOURCE: Mullins et al. (2010). Reprinted with permission from *Environmental Science and Technology* 2010, 45(1):132-138. Copyright 2010 American Chemical Society.

*We recommend that EPA does not finalize the proposed advanced butanol pathway; based on EPA's earlier data, public references, and lack of uncertainty analysis, the new proposed corn butanol pathway does not qualify as advanced biofuel.*

## **E.2. Butanol, Biobutanol and Volatility Considerations**

EPA also proposes to revise its interpretation of § 211(h) of the CAA with regard to fuel blends containing biobutanol. Specifically EPA proposes that biobutanol blended with E10 can qualify for the ethanol volatility waiver in § 211(h).

Section 211(h)(1) provides in pertinent part that: “Not later than 6 months after November 15, 1990, the Administrator shall promulgate regulations making it unlawful for any person during the high ozone season (as defined by the Administrator) to sell, offer for sale, dispense, supply, offer for supply, transport, or introduce into commerce gasoline with a Reid Vapor Pressure in excess of 9.0 pounds per square inch (psi).”

Section 211(h)(4) then provides a waiver from that requirement:

For fuel blends containing gasoline and 10 percent denatured anhydrous ethanol, the Reid vapor pressure limitation under this subsection shall be one pound per square inch (psi) greater than the applicable Reid vapor pressure limitations established under paragraph (1); provided, however, that a distributor, blender, marketer, reseller, carrier, retailer, or wholesale purchaser-consumer shall be deemed to be in full compliance with the provisions of this subsection and the regulations promulgated thereunder if it can demonstrate (by showing receipt of a certification or other evidence acceptable to the Administrator) that —

- (A) the gasoline portion of the blend complies with the Reid vapor pressure limitations promulgated pursuant to this subsection;
- (B) the ethanol portion of the blend does not exceed its waiver condition under subsection (f)(4) of this section; and
- (C) no additional alcohol or other additive has been added to increase the Reid Vapor Pressure of the ethanol portion of the blend.

Consistent with the language of section 211(h), EPA currently implements the waiver provision to “prohibit[] ... commingling of E10 and gasoline blends other than E10” because those blends would still have a higher RVP (i.e., 10 psi where ethanol is added to a 9.0 psi gasoline) yet could not qualify for the waiver, as the concentration of ethanol in the blends would be less than 9% or greater than 10% ethanol. 78 Fed. Reg. at 36060.

As EPA points out in the proposal, at the time the Agency issued the E15 refueling mitigation rule, 76 Fed. Reg. 44406, 44433 (July 25, 2011), EPA considered various interpretations of section 211(h) including whether the 1 psi waiver could apply to ethanol blends below 10% and concluded that it could not. EPA stated: “we are confirming our view that section 211(h)(4) limits the 1 psi waiver to fuel blends containing gasoline and 9-10vol% ethanol,...” *Id.* EPA considered this issue fully in that proposal (pages 44433-44435) and stated that the 1 psi waiver does “not apply to blends above or below the range of 9-10vol%.” *Id.* at 44435. EPA got this issue right in that final rule. There is no basis to change that correct interpretation now to apply the 1 psi waiver to blends below the range of 9-10vol% ethanol.

EPA now proposes to revise its interpretation of what gasoline can qualify for the waiver by finding that as long as the gasoline-ethanol component of the fuel blend is E10-compliant, a fuel can be mixed with another fuel (i.e., biobutanol) and still be eligible for the section 211(h)(4) waiver. This is because EPA now suggests that the RVP standard set forth in section 211(h)(1) could apply not to “the commingled [E10 and biobutanol] mixture as whole” (the current interpretation), but rather “to the components of the commingled mixture.” 78 Fed. Reg. at 36060. EPA suggests that “this approach would provide a limited modification to how the RVP standards would apply for only certain fuel mixtures — those where the overall or net volatility of the commingled mixture is no higher than the weighted average of the original blends themselves...” *Id.* at 36061.

EPA's proposal does not square up with the plain language of the statute, and EPA therefore does not have authority under § 211(h) to adopt its admittedly "artificial" approach. 78 Fed. Reg. at 36062. As defined by Merriam Webster Dictionary, blend means to "mix; *especially*: to combine or associate so that the separate constituents or the line of demarcation cannot be distinguished." See Definition of "Blend," <http://www.merriam-webster.com/dictionary/blend>. With regard to fuels, a "blend" does not refer to the components that went into the blend, but to the properties of the "commingled mixture" (i.e., blend) itself. The blend in this case is composed of E10 and biobutanol. If a E10-biobutanol blend *does not* contain 10 percent denatured anhydrous ethanol, under the plain terms of the statute the blend cannot qualify for the section 211(h)(4) waiver, which is only available for "fuel blends containing gasoline and 10 percent denatured anhydrous ethanol."

Moreover the approach that EPA now suggests does not make a rational distinction between the way that EPA would treat commingled blends involving butanol and commingled blends involving clear gasoline. There is no basis to treat the two cases differently.

EPA provides an example of 2000 gallons of E10 at 10 psi being blended with 8000 gallons of Bu12 at 9.0 psi and claims a resulting RVP of 9.2 psi (page Federal Register, vol. 78, pg. 36062). This is incorrect and EPA does not explain how they determined this. A 2% ethanol blend with 9 psi gasoline would have about a 0.6 psi increase or a total of 9.6 psi. Also, EPA's example masks the problem by selecting a low percentage (20%) of ethanol. If EPA used a 50/50 blend the resultant RVP would be 10 psi and if they used an 80/20 example the resultant RVP would still be around 10 psi, the same as if the ethanol blend had been diluted with pure gasoline rather than a butanol blend.

Butanol does have a lower blending RVP of about 6.4 psi but a Bu12 blend at 9.0 psi will have added sufficient high RVP hydrocarbons to offset the butanol effects and thus the ethanol bounce still occurs. EPA's chart V.F.-4 is also misleading since it doesn't represent 9.0 psi gasoline. The Bu12 in the chart has an RVP of 8.25 psi and even the E10 has an RVP of 9.5 psi. So the curve is 0.5 to 0.75 psi lower than it should be. If the data was produced properly, all of the points would be above 8.79 psi Cert gas line.

Thus, there is no basis to treat the gasoline/butanol blend any different than the pure gasoline. Furthermore, it is clear based on EPA's long standing interpretations, and the plain language of section 211(h), that the 1 psi waiver would not apply where the ethanol blend is diluted by pure gasoline. There is no basis to take a different approach just because butanol is present.

A member company of API and AFPM is currently testing hand-blends of various butanol and ethanol blended gasolines to determine the impact on vapor pressure. In contrast to what EPA assumes in the proposal, initial tests indicate the relationship is nonlinear. When testing is complete, the data and conclusions will be submitted to the docket after the comment deadline.

In addition, EPA states that butanol can be distributed as a gasoline blend throughout the fungible distribution system (see page 36060). This is incorrect since butanol is an oxygenate and most pipelines ban oxygenates.

## **F. Amendments to Various Compliance Related Provisions**

### **F.1. Proposed Changes to Definitions**

#### Responsible Corporate Officer

EPA proposes to add a definition for Responsible Corporate Officer (RCO) to Subpart M. To increase clarity in the regulations and to apply the definition of RCO consistently across all subparts, API and AFPM recommend that EPA add a new definition for RCO to 40 CFR 80.2. This definition could then apply to all subparts in Part 80 and would eliminate the need to have a separate definition in Subpart M.

Any new definition for RCO should be consistent with existing guidance that was provided in the July 1, 1994 RFG Q&A:

*Question: What is the definition of a responsible corporate officer (RCO) who is required to certify some of the submissions involved?*

*Answer: Under § 80.75(n), reports to EPA must be signed and certified as correct by the owner or a responsible corporate officer of the refiner, importer, or oxygenate blender. "Owner" means the person who is the principal owner of the business. The "responsible corporate officer" means a person who is an officer of the corporation under the laws of incorporation of the state in which the company is incorporated, and who in the corporate structure is the person ultimately responsible for the refining, importing, or oxygenate blending activity. EPA will accept reports that are signed by someone to whom the responsibility is delegated by the owner or an officer of the corporation, provided that the delegation is made in writing, the delegatee is familiar with the RFG and anti-dumping requirements, and the delegatee is no lower in the organization than refinery manager in the case of refiners, manager of the oxygenate blending facility in the case of oxygenate blenders, vice-president in charge of importing activities in the case of importers, or a similar level position.(7/1/94)*

Specifically in the case of a refiner or obligated party, EPA should preserve the current guidance allowing RCO responsibilities to be delegated to the Refinery General Manager as established in the 1994 Q&A document. This existing delegation of authority has worked well for both EPA and the refining industry for almost 20 years and should not be lost in the process of establishing a new regulatory definition for RCO.

We would like to comment on the administrative procedures that EPA imposes on RCOs under Part 80, even though EPA does not specifically request comment on this issue in the NPRM. Currently, any update to a company or facility registration requires signature from a responsible corporate officer (RCO) no matter the nature of the change. This process, which requires senior level approvals for relatively minor administrative updating, is very burdensome

for executives and can be streamlined using sufficient company delegations. An example of this is a change in the facility contact information: a simple revision to a phone number, to an email address, or the correction of any typographical error would each require RCO signature. We strongly encourage EPA to provide flexibility in this process by granting authority to the RCO's designated company editor to make these changes without requiring additional RCO signatures.

Also, there should be a mechanism for an RCO to designate which notifications are directed to him/her directly or to specifically choose to have notifications go to his chosen editor instead. An example is the notifications that go out when reports are submitted or resubmitted. In the situation where the company has a significant number of facilities, these notifications add greatly to the RCOs e-mail load. API and AFPM would be happy to work directly with the EPA to outline some specific changes that would alleviate the administrative burden without compromising the integrity or enforceability of the program.

In summary, API and AFPM believe that the regulations could be strengthened by adding a definition for RCO to section 80.2, provided that the definition preserves all of the flexibility from existing guidance and allows the RCO responsibilities to be delegated to the Refinery General Manager. EPA should consider reducing the administrative burden of routine procedures that currently require RCO involvement and approval.

#### Small Refinery

The EPA proposes to require any existing Small Refinery who is requesting an extension of its Small Refinery status to demonstrate that it has met the maximum 75,000 bpd crude processing threshold in every year since 2006. If the refinery data shows that the 75,000 bpd threshold has been exceeded, the extension request would be denied.

API and AFPM support this proposal. It is consistent with the definition of Small Refinery under CAA 211(o)(1)(K), which does not restrict the threshold demonstration to any specific year.

### **F.2. Provisions for Small Blenders of Renewable Fuels**

EPA seeks comment on whether to increase the 125,000 gallon per year maximum limit for small blenders of renewable fuel and also seeks comment on what a more appropriate maximum limit should be. API and AFPM believe that the current regulations provide adequate flexibility for the small blender and that the 125,000 gallon per year maximum limit should be maintained.

### **F.3. Proposed Changes to Section 80.1450 – Registration Requirements**

EPA proposes to cancel a company's Subpart M registration under certain conditions. Specifically, if a party has reported no activity on EMTS for the period of one year, or has failed

to comply with registration, reporting, EMTS, or attestation requirements, EPA proposes to cancel their registration.

In general, API and AFPM agree that all parties subject to the Subpart M regulations should establish a valid registration by meeting the requirements of 80.1450. However, EPA has not explained why it would be necessary to cancel a party's registration under the prescribed circumstances. EPA does not offer any explanation of the benefits of canceling a registration. The current registration process is open ended. Once a party satisfies the requirements of 80.1450, it becomes registered under the program and the registration remains valid indefinitely. The proposal to shift from the status quo should be justified with an explanation of benefit or need.

API and AFPM members have several concerns about the proposal to cancel registrations as proposed by EPA:

- Deactivation of a company registration due to one year's inactivity could create problems in the event of possible legal actions involving a deactivated company who would then have no access to EPA transactional or reporting records. In addition, EPA may deactivate a company subsequent to a change of ownership. This too could cause problems for our members in that we may need to ask the prior owners to access records of their deactivated company and/or facility records which are no longer available. In addition, it may be necessary to confirm date of submittal of transactional records or submitted reports and this information may only be available in EPA's systems.
- The prescriptive cancellation of registrations could create problems with the existing registration, recordkeeping, and reporting systems. API and AFPM members have experienced many problems with the accuracy of information in the OTAQREG database. We have observed difficulty in promptly correcting OTAQREG problems when they are identified. We are concerned that the automatic cancellation of a company's registration could further challenge the integrity of the OTAQREG system and compound the problems related to managing the system.
- Implementation of a prescriptive registration cancellation system due to the events listed by EPA, such as failure to submit reports, timely transactional data or its annual attestation, would require EPA to respond immediately and accurately when a cancellation is triggered and again when a party reinstates their registration. If EPA mistakenly cancels a compliant party's registration, the cancellation could affect the party's ability to conduct RFS-related business, including fuel and RIN transactions and perform required reporting. Such "false positive" cancellations could cause a great deal of confusion between the party and their business partners and would complicate enforcement activities for EPA.
- Prescriptive cancellation may have unintended consequences. Specifically, a party whose registration would be subject to cancellation may have pending EMTS transactions with multiple business partners at the time of cancellation. It is not clear what would happen to these transactions when the cancellation occurs. Similarly, it may be necessary for a



party to report a correction to an original transaction. If the original transaction occurred when both parties held valid registrations, the subsequent cancellation of one party's registration could jeopardize the ability of the other party to report a correction.

- Transactions expire when a party does not accept a transaction within the prescribed timeframe. Oftentimes this is due to potentially incorrect data being included in the original transaction and the parties agreeing to allow the transaction to expire while endeavoring to resolve the issue. Expired transactions should not be viewed as non-compliance with the requirements of §80.1452.

The cancellation of a party's registration should not affect the transactions or reporting of any other party who is only a business partner of the original party. We would be opposed to any automatic actions that may be taken which would compromise the integrity of the information contained in OTAQREG and EMTS. We would also oppose any actions that would affect an innocent party's ability to demonstrate compliance with the reporting requirements of Subpart M.

If EPA proceeds to finalize this provision, a notification to parties of an impending cancellation should be required, and EPA should allow reasonable extensions for companies that request it. It is also appropriate for EPA to keep registrations active for any party holding valid RINs. Due to the two year RIN life, cancellation after one year of inactivity is too short. However, EPA has not demonstrated a justification for prescriptively cancelling a party's registration under Subpart M. We believe that the proposed action could create problems with the registration database. Without a sufficient justification, we would oppose this proposal.

#### **F.4. Proposed Changes to Section 80.1452 – EPA Moderated Transaction System (EMTS) Requirements – Alternative Reporting Method for Sell and Buy Transactions for Assigned RINs**

AFPM and API are pleased to see the addition of an alternative method of reporting buy and sell transactions in EMTS and support the EPA-proposed amendments to § 80.1452(d).

#### **F.5. Proposed Changes to Section 80.1463 – Confirm that Each Day an Invalid RIN Remains in the Market is a Separate Day of Violation**

EPA proposes to specify that “any person liable for a violation of section 80.1460(b) for creating or transferring an invalid RIN, or for causing another person to create or transfer and invalid RIN, is subject to a separate day of violation for each day that the invalid RIN remains available for use for compliance purposes.” Id. at 36065. EPA characterizes this action as explicitly incorporating an existing Agency interpretation of the RFS2 penalty provisions. EPA explains at the beginning of this section of the preamble that, “Preventing the generation and use of invalid RINs and encouraging rapid retirement and replacement of invalid RINs is crucial to the integrity of the RFS2 program.” Id. Thus, it appears that EPA has proposed this provision as a deterrent to the generation and use of invalid RINs.

The regulations specifically identify prohibited acts in 40 CFR 80.1460. Those acts include generating, creating, and/or transferring invalid RINs. With this proposal, EPA is creating another category of violation for RINs that are “available for use for compliance purposes.” This proposed change is not a confirmation of an existing Agency interpretation as EPA purports. Instead, it is a new category of violation. With this proposal, a party who purchased a RIN, and then transfers it to another party, is now potentially subject to a significant penalty based on how long the receiving party may hold that RIN before retiring it. Now, the transferor, who neither generated nor created the invalid RIN, may face substantial penalties based on actions taken that are beyond the transferor’s control or authority.

The purpose of the prohibition is to minimize the potential for invalid RINs to be generated and used. Punishing a transferor based on the number of days a RIN may be in another party’s inventory is wholly ineffective toward meeting this objective. Parties should be held accountable for their actions alone. Such an extension of the prohibited acts, with the possibility of substantial penalties being assessed, is unjustifiable.

AFPM and API agree that it is important to deter the generation and use of invalid RINs. But, this proposed change would unfairly and unreasonably create the same potential liability for innocent purchasers and transferees of invalid RINs as it would for those who knowingly and intentionally generate and propagate invalid RINs in the first instance.

#### **F.6. Proposed Changes to Section 80.1466 — Require Foreign Ethanol Producers, Importers and Foreign Renewable Fuel Producers That Sell to Importers To Be Subject to U.S. Jurisdiction and Post a Bond**

EPA explains in the proposal, 78 Fed. Reg. 36065, that the Agency is proposing changes to the regulations to require foreign renewable fuel producers, and foreign renewable fuel producers that produce renewable fuel for which importers ultimately generate RINs, and for importers of renewable fuel to meet the same requirements that foreign renewable fuel producers that generate RINs are subject to under section 80.1466, including, but not limited to, designation, foreign producer certification, product transfer document, load port independent testing and producer identification, submission to U.S. jurisdiction and posting of a bond. EPA further explains that it is also proposing to amend section 80.1426(a)(4) to prohibit importers from generating RINs for renewable fuel imported from a foreign renewable fuel producer or foreign ethanol producer, unless and until the foreign renewable fuel producer has satisfied all requirements of section 80.1466. We disagree with these aspects of EPA’s proposal. As explained below, imposing such requirements is impractical, increase costs, and is unnecessary.

EPA’s proposal is entirely inconsistent with the rationale that EPA has always applied to impose special requirements on foreign parties under the Agency’s fuels rules. The rationale has always been that such special requirements, including the requirement to post a bond, were necessary because such a foreign party was not entirely under the jurisdiction of the United States. For example, EPA explained this in the final RFS2 rule, 75 Fed. Reg. 14712-13 (Mar. 26, 2010):

*“In general, we are requiring foreign producers of renewable fuel to meet the same requirements as domestic producers with respect to registration, recordkeeping and reporting, attest engagements, and the transfer of RINs they generate with the batches of renewable fuel that those RINs represent. However, we are also placing additional requirements on foreign producers to ensure that RINs entering the U.S. are valid and that the regulations can be enforced at foreign facilities. These additional requirements are designed to accommodate the more limited access that EPA enforcement personnel have to foreign entities that are regulated parties under RFS2, and also the fact that foreign-produced biofuel intended for export to the U.S. is often mixed with biofuel that will not be exported to the U.S.”*

We can appreciate the additional requirements that EPA has imposed on foreign renewable fuel producers that generate RINs. **However the same rationale does not apply to the other situations that EPA is now proposing to cover – i.e., foreign renewable fuel producers, and foreign renewable fuel producers that produce renewable fuel for which importers ultimately generate RINs, and for importers of renewable fuel, because in all of these cases the party that generates the RIN and brings the renewable fuel within the scope of the RFS regulations will be a domestic party that is clearly subject to the full force and effect of US laws and EPA’s regulations.** There is quite simply no basis to conclude that the additional requirements are necessary to ensure that the regulations can be enforced against these parties. The current version of the rule puts the responsibility on the RIN generator to ensure that all of the regulations are met, including the provisions related to the definition of renewable biomass.

API and AFPM support EPA’s efforts to address fraudulent RINs. We engaged with EPA and other stakeholders in the rulemaking process to establish an RFS RIN Quality Assurance Program. We expect this rule to provide sufficient safeguards to minimize fraudulent RINs, so additional requirements to segregate product and post bond are not needed. Imported ethanol already goes through a rigorous third party certification to ensure compliance to the Mill under current regulations. Third party certification will likely be standardized across the industry for these RINs under EPA’s RIN Quality Assurance Program.

EPA’s proposal will also result in practical difficulties that will hinder renewable fuels supplies and unnecessarily increase costs. EPA’s proposal would require additional segregation of renewable fuels. However, this is problematic because insufficient renewable fuel tankage exists in foreign ports to segregate each foreign producer's biodiesel or ethanol as gathered via trucks, rail, and barges, until an oceangoing cargo size volume is accumulated for export to US. The likely result of EPA’s proposal is that foreign renewable fuel producers, and the US importers of those renewable fuels, would be forced to suspend activity for approximately one (1) year while additional tankage is constructed on foreign soil to accomplish the Agency’s desired degree of load port segregation. This will only amplify the challenges already experienced by the entire market due to the blend wall, as it will generally make importation of renewable fuels more difficult potentially resulting in fewer RINs available to obligated parties, and will likely make advanced renewable fuels more scarce in the U.S.. In addition, even if additional tankage could be built in foreign ports, such a requirement would delay receipt of

foreign renewable fuels needed to meet RFS mandate, and raise cost of foreign renewable fuels relative to domestic renewable fuels, inflating cost of all US renewable fuels.

In addition, imposing a requirement for a third party observer to designate fuel as “RFS-FRRF” will do nothing beyond imposing additional costs upon foreign-sourced renewable fuel where there is a US RIN generator. We believe EPA’s regulations are already sufficiently clear that the responsibility for RIN validity lies with the generator and the Obligated Party that uses the RINs for its RVO. If EPA is seeking to improve transparency and shared compliance responsibility between foreign producer and RIN generator, EPA should update EMTS protocols such that when an importer generates RINs, the EMTS system sends an automated notice to the foreign producer showing the name of the RIN generator as well as the volume, date, and D-code of the RINs generated.

#### **F.7. Proposed Changes to Section 80.1466(h) — Calculation of Bond Amount for Foreign Renewable Fuel Producers, Foreign Ethanol Producers and Importers**

As EPA explains in the proposal, the Agency is proposing two changes to section 80.1466 regarding calculation of bonds. **First**, EPA proposes to amend the procedures for calculating the bond amount for foreign renewable fuel producers, foreign ethanol producers and importers to require that the bond amount be the larger of: (1) One cent times the largest volume of renewable fuel produced by the foreign producer and exported to the United States, in gallons, during a single calendar year among the five preceding calendar years, or the largest volume of renewable fuel that the foreign producers expects to export to the United States during any calendar year identified in the Production Outlook Report required by section 80.1449, or (2) the sum of the following calculation for each RIN type: 0.25 times the largest volume of renewable fuel produced by the foreign producer and exported to the United States, in gallons, during a single calendar year among the five preceding calendar years, or the largest volume of renewable fuel that the foreign producers expects to export to the United States during any calendar year identified in the Production Outlook Report required by section 80.1449, times a “RIN multiplier D code” established by EPA in the regulations. **Secondly**, EPA proposes to amend paragraph (h) of section 80.1466 to be consistent with paragraph (j)(4), which prohibits generating RINs in excess of the number for which the bond requirements have been satisfied. We have a number of concerns with these proposals and some recommendations for improvement.

If EPA, over our objections, goes forward with the proposal to impose bonding requirements on additional parties, EPA should recognize that the foreign non-RIN generating renewable fuel producer may not necessarily know that the destination of its renewable fuel is the US, until it receives notice in EMTS that RINs have been generated against its name as producer. That does not imply however that all requirements are not met. It is possible that the foreign producer complies with all RFS2 requirements but that the volume of renewable fuel produced is ultimately shipped to another destination. Thus, it would be inappropriate to impose the requirement on the foreign non-RIN generating renewable fuel producer.

#### **It Is Unreasonable For EPA To Impose The Proposed Rule Changes Retroactively**

Section 80.1466(p) of the proposed regulations indicates that the proposed changes to section 80.1466 would be effective retroactively to January 1, 2013. We are hopeful that this is simply a printing error

and that EPA will correct this before finalizing the rule. It is not reasonable for EPA to impose such requirements retroactively. It is simply impossible for EPA to enforce a regulation looking back on actions foreign renewable fuel producers and RIN generators should have taken throughout 2013, when at the time of production, transportation, import and RIN generation, those foreign renewable fuel producers and RIN generators had no knowledge of any proposed rule change.

#### API Method Should Be Allowed to Determine Standardized Volumes of Ethanol

Under 40 CFR 80.1426(f)(8)(i), EPA provides only one method for determining the standardized volume of a batch of fuel ethanol for the purposes of generating RINs. After an extensive independent laboratory study, the American Petroleum Institute (API) finalized during July 2011 a new Chapter 11.3.3 within the Manual of Petroleum Measurement Standards (MPMS) presenting ethanol density and volume correction factors. AFPM and API recommend that EPA also adopt API MPMS Chapter 11.3.3 within 40 CFR 80.1426(f)(8)(i), as an alternative method for determining the standardized volume of a batch of ethanol. Please note this proposed action is not unprecedented. EPA has similarly adopted the API method (Refined Products Table 6B) for determining the standardized volume of biodiesel within 40 CFR 80.1426(f)(8)(ii)(B).

#### **F.8. Proposed Changes to Facility's Baseline Volume to Allow "Nameplate Capacity" for Facilities not Claiming Exemption from the 20% GHG Reduction Threshold**

API and AFPM have no comment on this proposal.

### **VI. Amendments to the E15 Misfueling Mitigation Rule (MMR)**

#### AFPM's August 2011 Petition

AFPM submitted a petition to EPA, dated August 17, 2011 and included as Attachment No. 1,<sup>4</sup> to reconsider the Agency's E15 misfueling mitigation rule.<sup>5</sup> The Agency inappropriately included regulatory provisions that were not in the E15 misfueling mitigation proposal and redefined E10 as a blend with no more than 10.0 volume percent ethanol. The decimal place was new; all proposed requirements and Agency text used 9 or 10 volume percent. EPA did not provide notice of this change, a rationale, or technical support for this new regulatory provision.

In evaluating the petition, EPA declines to apply the rounding convention used for E10 compliance testing, found at 40 C.F.R. § 80.9, in the E15 Misfueling Mitigation Rule's (MMR) definition of E10. EPA proposes to clarify that the MMR definition of E10 should not be applied outside of the MMR. In the context of the MMR, if a manufacturer produces a blend in a way

<sup>4</sup> At that time, AFPM was the National Petrochemical and Refiners Association (NPRA).

<sup>5</sup> Regulation To Mitigate the Misfueling of Vehicles and Engines With Gasoline Containing Greater Than Ten Volume Percent Ethanol and Modifications to the Reformulated and Conventional Gasoline Program, 76 *Federal Register* 44406 (July 25, 2011).

that is “designed to result” in E10, then they will be able to round down from 10.49 to 10.0. But, a manufacturer would not be allowed to intentionally blend for the purpose of taking advantage of this rounding convention (i.e., manufacturers/blenders must use processes “designed to result” in E10.0).

This approach makes little sense and is fatally arbitrary. In effect, EPA proposes to keep two sets of books for the same fuel. On one hand, fuel can be certified to be E10 using test methods that plainly allow rounding down to 10 from values up to 10.49. This is a practicable approach and is a faithful application of standard mathematical rounding conventions. On the other hand, conventional rounding might or might not be permissible, depending on the intentions of the fuel producer or blender. Thus, two quantities of fuel with exactly the same ethanol content may or may not pass muster under the MMR, depending on the state of mind of the producer or blender.

This approach is unreasonable and arbitrary. It inexplicably could result in compliance with the fuel certification requirements for a batch of fuel, but noncompliance with the MMR. It also injects unnecessary uncertainty into the compliance determinations because the subjective state of mind must be considered, rather than just objective chemical properties. Lastly, this approach would produce no discernible benefit to program implementation, health, or the environment. For these reasons, EPA should simply conform the MMR to the fuel certification methods.

We are pleased that EPA proposes to correct this error, but we are disappointed that it was not accomplished before 2013. AFPM and API trust that proper procedure will be followed in the future. We expect that a rationale or technical support will be provided with new regulations.

AFPM and API support the Agency’s proposal to delete the decimal point from the regulatory provisions at 80.1500, 1503 and 1504(a)(1). This will align with other rulemakings, including the E10 waiver in 1979 and the 1 psi RVP waiver for summer conventional gasoline.

However, EPA included proposed regulatory provisions for 80.1504(e)(2), e(3) and (e)(4) that include the decimal place:

- (2) No person shall produce E10 by blending ethanol and gasoline in a manner designed to produce a fuel that contains less than **9.0** or more than **10.0** volume percent ethanol.
- (3) No person shall produce E15 by blending ethanol and gasoline in a manner designed to produce a fuel that contains less than **10.0** volume percent ethanol or more than **15.0** volume percent ethanol.
- 4) No person shall produce EX by blending ethanol and gasoline in a manner designed to produce a fuel that contains less than **9.0** volume percent ethanol.  
(emphasis added)

This must be corrected in the final rule as follows:

(2) No person shall produce E10 by blending ethanol and gasoline in a manner designed to produce a fuel that contains less than **9** or more than **10** volume percent ethanol.

(3) No person shall produce E15 by blending ethanol and gasoline in a manner designed to produce a fuel that contains less than **10** volume percent ethanol or more than **15** volume percent ethanol.

4) No person shall produce EX by blending ethanol and gasoline in a manner designed to produce a fuel that contains less than **9** volume percent ethanol.

#### AFPM's September 2011 Petition

AFPM submitted another petition to EPA, dated September 15, 2011, to reconsider other provisions in the Agency's E15 misfueling mitigation rule (included as Attachment No. 2). AFPM is concerned that the product transfer document (PTD) regulations are not comprehensive and do not address all situations.

We appreciate the clarification that RVP sampling and testing are not required during the winter months when RVP standards do not apply.<sup>6</sup>

We support the new provision at 80.1503(a)(1)(C)(3) on product codes.<sup>7</sup> This implements a recommendation in our September 2011 petition.

AFPM is disappointed that the Agency decided not to propose our other recommendations or even acknowledge this second petition. The PTD regulations should be revised to address the following:

- Winter conventional gasoline containing 10 volume percent ethanol,
- The one psi RVP waiver that is not permitted by state regulations for summer conventional gasoline, and
- Alternative regulatory language to provide flexibility for compliance with state standards.

Alternatively, we request an explanation why EPA believes that these suggestions are inappropriate.

EPA should consider changes that will simplify the PTD requirements and lessen the confusion that exists while still providing enough information to prevent co-mingling problems that could occur at retail, particularly during the volatility control season. Suggested changes to the information statements required in the PTD are outlined below:

- 1) The RVP level statement is unnecessary, especially upstream of the oxygenate blending facility. Although the value for requiring at the terminal is questionable, we concede that

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<sup>6</sup> 78 *Federal Register* 36067 and 80.1502(b)(3)(iii)(A).

<sup>7</sup> Also at 78 *Federal Register* 36067.

there could be some benefit for including on the Bill of Lading issued at the terminal to help prevent mis-deliveries.

- a. The industry has a well coordinated system that operates yearly to provide on-specification product to the terminals throughout the VOC-control season. The pipeline specifications along with the refinery gasoline batch sampling, testing and certification ensures that gasoline with a known RVP maximum is delivered to the terminals for ethanol blending and further distribution.
- 2) The EPA mandated statement concerning applicability of the 1 psi waiver is unnecessary, plus the current regulatory language is not correct. We are concerned that the language creates confusion, particularly in areas that do not allow the 1 psi waiver for gasolines containing between 9 and 10 volume percent ethanol. This results in industry entities' having to put additional language beyond what is prescribed in the regulation concerning these exceptions. **A statement on the PTD created at the oxygenate blending facility that indicates the ethanol content and the finished blend RVP would be sufficient.** For example, at a terminal in a 9.0 psi conventional gasoline area where the 1 psi waiver applies and that also supplied E15, the BOL for a 10% blend would show that it contained between 9 and 10 vol% ethanol and that the RVP did not exceed 10.0 psi. The E15 PTD for the same area would indicate that it contained up to 15 vol% ethanol and that it did not exceed 9.0 psi. This, along with the statement on the E10 product to not commingle, would be sufficient.

In addition, AFPM requested clarification for regulations at 1503(a)(1)(vi)(B)(2), 1503(a)(2), and 1503(b)(1)(vi). These clarifications should be included in the Preamble for the final rule.

API and AFPM incorporate by reference with these comments our response to EPA's Proposed Regulation To Mitigate the Misfueling of Vehicles and Engines With Gasoline Containing Greater Than Ten Volume Percent Ethanol and Modifications to the Reformulated and Conventional Gasoline Programs (75 FR 68044, November 4, 2010). API and AFPM (then NPRA) comments can be found in the Docket at EPA-HQ-OAR-2010-0448-0081 and EPA-HQ-OAR-2010-0448-0067 respectively.

### **C. Proposed changes to Section 80.1503 – Product Transfer Documents**

There are a number of errors and omissions in EPA's Product Transfer Document language that should be corrected, if these requirements are to remain.

- 1) The RVP level statement is unnecessary, especially upstream of the oxygenate blending facility. Although the value for requiring at the terminal is questionable, we concede that there could be some benefit for including on the Bill of Lading issued at the terminal to help prevent mis-deliveries; however this has not been an issue to date.

The industry has a well-coordinated system that operates continuously to provide on-



specification product to the terminals throughout the VOC-control season. The pipeline specifications along with the refinery gasoline batch sampling, testing and certification ensures that gasoline with a known RVP maximum is delivered to the terminals for ethanol blending and further distribution.

- 2) The EPA mandated statement concerning applicability of the 1 psi waiver is unnecessary, plus the current regulatory language is not correct. We are concerned that the language creates confusion, particularly in areas that do not allow the 1 psi waiver for gasolines containing between 9 and 10 volume percent ethanol. This results in industry entities' having to put additional language beyond what is prescribed in the regulation concerning these exceptions. **A statement on the PTD created at the oxygenate blending facility that indicates the ethanol content and the finished blend RVP would be sufficient.** For example, at a terminal in a 9.0 psi conventional gasoline area where the 1 psi waiver applies and that also supplied E15, the BOL for a 10% blend would show that it contained between 9 and 10 vol% ethanol and that the RVP did not exceed 10.0 psi. The E15 PTD for the same area would indicate that it contained up to 15 vol% ethanol and that the RVP did not exceed 9.0 psi. This, along with the statement on the E10 product to not co-mingle would be sufficient.

Below is the current 80.1503 with suggested edits:

**§ 80.1503 What are the product transfer document requirements for gasoline-ethanol blends, gasolines, and conventional blendstocks for oxygenate blending subject to this subpart?**

*(a) Product transfer documentation for conventional blendstock for oxygenate blending, or gasoline transferred upstream of an ethanol blending facility.*

(1) In addition to any other product transfer document requirements under 40 CFR part 80, on each occasion after October 31, 2011, when any person transfers custody or title to any conventional blendstock for oxygenate blending which could become conventional gasoline solely upon the addition of ethanol, or gasoline upstream of an oxygenate blending facility, as defined in § 80.2(II), the transferor shall provide to the transferee product transfer documents which include the following information:

- (i) The name and address of the transferor;
- (ii) The name and address of the transferee;
- (iii) The volume of conventional blendstock for oxygenate blending or gasoline being transferred;
- (iv) The location of the conventional blendstock for oxygenate blending or gasoline at the time of the transfer;
- (v) The date of the transfer;
- (vi) For gasoline during the regulatory control periods defined in § 80.27(a)(2)(ii) or any SIP approved or promulgated under §§ 110 or 172 of the Clean Air Act:

~~(A) The maximum RVP, as determined by a method permitted under § 80.46(e), stated in the following format: “The RVP of this gasoline does not exceed [fill in appropriate value]”; and~~

~~(B) For gasoline designed for the special provisions for gasoline-ethanol blends in § 80.27(d)(2), information about the ethanol content and RVP in paragraphs (a)(1) through (a)(3) of this section, with insertions as indicated:~~

~~(1) “Suitable for the special RVP provisions for ethanol blends that contain between 9 and 10 vol % ethanol.”~~

~~(2) “The RVP of this blendstock/gasoline for oxygenate blending does not exceed [Fill in appropriate value] psi.”~~

~~(3) A “The use of this blendstock/gasoline to manufacture a gasoline-ethanol blend containing anything other than between 9 and 10 volume percent ethanol may cause a summertime RVP violation.”~~

~~(C) B For gasoline not described in paragraph (a)(vi)(B) of this section, intended for blending with greater than 10 vol% ethanol, information regarding the suitable ethanol content, stated in the following format: “Suitable for blending with ethanol at a concentration of no more than 15 vol % ethanol.”~~

(2) The requirements in paragraph (a)(1) do not apply to reformulated gasoline blendstock for oxygenate blending, as defined in § 80.2(kk), which is subject to the product transfer document requirements of § 80.69 and § 80.77.

(3) Except for transfers to truck carriers, retailers, or wholesale purchaser-consumers, product codes may be used to convey the information required under paragraph (a)(1) of this section if such codes are clearly understood by each transferee.

*(b) Product transfer documentation for gasoline transferred downstream of an oxygenate blending facility .*

(1) In addition to any other product transfer document requirements under 40 CFR part 80, on each occasion after October 31, 2011, when any person transfers custody or title to any gasoline-ethanol blend downstream of an oxygenate blending facility, as defined in § 80.2(ll), except for transfers to the ultimate consumer, the transferor shall provide to the transferee product transfer documents which include the following information:

- (i) The name and address of the transferor;
- (ii) The name and address of the transferee;
- (iii) The volume of gasoline being transferred;
- (iv) The location of the gasoline at the time of the transfer;
- (v) The date of the transfer; and

(vi) One of the statements detailed in paragraph (b)(1)(vi)(A) through (E) which accurately describes the gasoline-ethanol blend. The information regarding the ethanol content of the fuel is required year-round. The information regarding the RVP of the fuel is only required for gasoline during the regulatory control periods.

(A) For gasoline containing no ethanol (E0), the following statement; “E0: Contains no ethanol. The RVP does not exceed [fill in appropriate value] psi.”

(B) For gasoline containing less than 9 volume percent ethanol, the following statement: “EX—Contains up to X% ethanol. The RVP does not exceed [fill in appropriate value] psi.” The term X refers to the maximum volume percent ethanol present in the gasoline.

(C) For gasoline containing between 9 and 10 volume percent ethanol (E10), the following statement: “E10: Contains between 9 and 10 vol % ethanol. The RVP does not exceed [fill in appropriate value] psi. ~~The 1 psi RVP waiver applies to this gasoline. Do not mix with gasoline containing anything other than between 9 and 10 vol % ethanol.~~”

(D) For gasoline containing greater than 10 volume percent and not more than 15 volume percent ethanol (E15), the following statement: “E15: Contains up to 15 vol % ethanol. The RVP does not exceed [fill in appropriate value] psi;” or

(E) For all other gasoline that contains ethanol, the following statement: “EXX—Contains no more than XX% ethanol,” where XX equals the volume % ethanol.

~~(2) Except for transfers to truck carriers, retailers, or wholesale purchaser-consumers, product codes may be used to convey the information required under paragraph (b)(1) of this section if such codes are clearly understood by each transferee.~~

(c) The records required by this section must be kept by the transferor and transferee for five (5) years from the date they were created or received by each party in the distribution system.

(d) On request by EPA, the records required by this section must be made available to the Administrator or the Administrator's authorized representative. For records that are electronically generated or maintained, the equipment or software necessary to read the records shall be made available, or, if requested by EPA, electronic records shall be converted to paper documents.

## **VII. Proposed Amendments to the ULSD Diesel Sulfur Survey**

The current provision at 80.613(e)(4)(C)(v)(A) sets the minimum annual number of samples at 5,250. AFPM and API support the Agency's proposal to reduce this number to 1,800. We welcome this potential reduction in regulatory burden.

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July 15, 2013

**Via Electronic Filing**

Air and Radiation Docket  
Environmental Protection Agency  
Mail code: 6406J  
1200 Pennsylvania Avenue NW  
Washington, DC 20460

ATTN: Docket ID No. EPA-HQ-OAR-2012-0401

Re: Regulation of Fuels and Fuel Additives: RFS Pathways II and Technical  
Amendments to the RFS 2 Standards; Notice of Proposed Rulemaking,  
78 Fed. Reg. 36,042 (June 14, 2013)

Dear Sir or Madam:

The National Biodiesel Board ("NBB") appreciates the opportunity to offer comments on EPA's proposed rule entitled "Regulation of Fuels and Fuel Additives: RFS Pathways II and Technical Amendments to the RFS 2 Standards," 78 Fed. Reg. 36,042 (June 14, 2013) ("Technical Amendments Proposed Rule"). NBB is the national trade association representing the biodiesel industry as the coordinating body for research and development in the United States, founded in 1992. NBB is a comprehensive industry association which coordinates and interacts with a broad range of cooperators, including industry, government and academia. NBB's membership is comprised of state, national and international feedstock and feedstock processor organizations, biodiesel suppliers, fuel marketers and distributors and technology providers. NBB believes that implementation of the RFS2 program has allowed for the continued promotion of advanced biofuels, and appreciates EPA's efforts to continue to support the program. EPA should continue to promote the diversification of feedstocks.

In particular, NBB's comments, which are provided in more detail below, address the following:

- *Foreign production of fuel:* NBB supports additional assurances that foreign producers of renewable fuel are in compliance with the RFS2, and additional provisions to assist EPA in enforcement of the RFS2 requirements, particularly increasing the bond requirements for foreign production of renewable fuels.
- *Small blenders delegation of RIN separation activities:* NBB fully supports EPA's efforts to increase the small blender threshold under 40 C.F.R. § 80.1440, which would better serve the needs of local and regional markets. NBB supports the producers' ability to separate RINs, and, at a minimum, EPA should increase the 125,000 gallon threshold for "small blenders" to 250,000 gallons.
- *Small Refineries:* While NBB agrees with EPA's proposed revision to the definition of small refinery, it questions the need and authority to continue to allow any further exemptions from the RFS2 requirements.

Several of the proposed amendments in the Technical Amendments Proposed Rule appear related to, or may be affected by, the outcome of EPA's proposal for a Quality Assurance Program. Thus, NBB requests that EPA finalize any such changes, to the extent they have been properly noticed, in conjunction with the final rule for the Quality Assurance Program. For those amendments that EPA has not properly noticed, NBB requests that EPA reissue the proposed rule to provide the public with a meaningful opportunity to comment.

I. NBB SUPPORTS REVISIONS TO ASSIST EPA'S ENFORCEMENT OF THE RFS2 REQUIREMENTS WITH RESPECT TO FOREIGN PRODUCERS OF RENEWABLE FUEL.

In the Technical Amendments Proposed Rule, EPA proposes revisions to the provisions applicable to foreign production of renewable fuel. NBB refers to its comments on the RFS Renewable Identification Number (RIN) Quality Assurance Program Proposed Rule ("QAP Proposal"), 78 Fed. Reg. 12,158 (Feb. 21, 2013). In its comments on the QAP Proposal, NBB recommended that EPA strengthen the ability to ensure invalid RINs associated with imported fuel are replaced. For example, EPA should consider having the domestic purchaser of the imported fuel be first in line to replace any invalid RIN, regardless of whether the RIN was subsequently transferred. NBB incorporates its comments by reference, and requests EPA to conform its changes to these provisions with any additional provisions needed with respect to the QAP Proposal. These comments can be found at Docket ID No. EPA-HQ-OAR-2012-0621-0069 at 21-23. Consistent with these comments, NBB generally supports EPA's proposed revisions here, which will assist EPA's enforcement with respect to foreign producers of renewable fuel and importers of such fuel. However, NBB continues to urge EPA to strengthen these provisions to ensure compliance with the program.



First, EPA proposes to require foreign renewable fuel producers<sup>1</sup> that produce biofuel for which importers ultimately generate RINs and importers of renewable fuel to agree to be subject to the additional requirements at Section 80.1466 applicable to RIN-generating foreign renewable fuel producers. 78 Fed. Reg. at 36,065. EPA also proposes to amend Section 80.1426(a)(4) to prohibit importers of renewable fuel from generating RINs, “unless and until the foreign renewable fuel producer or foreign ethanol producer has satisfied all requirements of section 80.1466.”<sup>2</sup> *Id.* These requirements include, but are not limited to, “designation, foreign producer certification, product transfer document, load port independent testing and producer identification, submission to U.S. jurisdiction and posting of a bond.” *Id.* As EPA states, it “is a particular challenge” to ensure compliance of fuel produced at foreign facilities. *Id.* As NBB has previously explained in its comments, NBB agrees that it is more difficult for EPA to enforce the provisions of the RFS2 program, particularly with respect to the renewable biomass provisions, outside the United States and Canada. Thus, NBB agrees that it is reasonable, and important, to apply these additional requirements to all producers of renewable fuel whose facilities are overseas,<sup>3</sup> regardless of whether they generate RINs or not.

Second, EPA proposes to amend the procedures for calculating the bond amount for foreign renewable fuel producers. EPA currently only requires a bond equal to one cent times the largest actual volume over the last five years or the largest expected volume identified in the producer’s Production Outlook Report. 40 C.F.R. § 80.1466(h)(1). EPA proposes to require that the bond amount be the larger of:

- (1) One cent times the largest volume of renewable fuel produced by the foreign producer and exported to the United States, in gallons, during a single calendar year among the five preceding calendar years, or the largest volume of renewable fuel that the foreign producers expects to export to the United States during any calendar year identified in the Production Outlook Report required by Section 80.1449, or
- (2) The sum of the following calculation for each RIN type: 0.25 times the largest volume of renewable fuel produced by the foreign producer and exported to the United States, in gallons, during a single calendar year among the five preceding calendar years, or the largest volume of renewable fuel that the foreign producers expects to export to the United States during any calendar year identified in the Production Outlook Report required by

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<sup>1</sup> This term as used throughout these comments is intended to include foreign ethanol producers.

<sup>2</sup> The proposed regulations do not include language for such an amendment.

<sup>3</sup> EPA provides alternative methods of compliance for rail and truck imports, and NBB agrees that imports from Canada, which shares a border with the United States, do not impose similar concerns as those shipped into the United States from other countries. *See infra*.

Section 80.1449, times a “RIN multiplier D code” established by EPA in the regulations.

78 Fed. Reg. at 36,065. The proposed RIN multipliers are:

The RIN multiplier for a D3 RIN is \$0.78  
The RIN multiplier for a D4 RIN is \$1.30  
The RIN multiplier for a D5 RIN is \$0.80  
The RIN multiplier for a D6 RIN is \$0.02  
The RIN multiplier for a D7 RIN is \$0.78

*Id.* at 36,076. As EPA explained, due to increases in RIN prices, “a penny per gallon of fuel may no longer be a fair valuation of a foreign renewable fuel producer’s potential penalty for RFS violations.” *Id.* at 36,066. NBB agrees that the current bond amounts are insufficient to provide adequate incentives for compliance.

In its comments on the QAP Proposal, NBB specifically recommended increasing the bond amounts under Sections 80.1465, 80.1466 and 80.1467. See EPA-HQ-OAR-2012-0621-0069 at 21. NBB still believes, however, that the bond amounts in this proposal are still too low, and do not provide adequate incentives to ensure compliance. For better oversight, NBB believes the minimum bond required for each company should be no less than 10 percent of the total value of imports each year. While EPA’s proposal will include higher numbers for RINs of certain D Codes, the bond amounts for other RIN D Codes would still be based on one cent. The RIN multipliers also appear to be based on RIN values from several years ago, and do not reflect the current state of RIN prices or anticipate the potential increase in RIN prices as the required volumes continue to increase. A straight volume percent can account for differences in RIN prices, and a 10% loss of value is much more significant incentive than 1-2 cents. Alternatively, EPA’s regulations should provide a mechanism to increase the bond amounts to the extent RIN prices are significantly different from the RIN multipliers proposed.

Moreover, EPA’s proposal only appears to relate to producers. EPA does not address whether this bond also should be increased for all foreign entities, not just producers. Although all foreign RIN owners currently are required to have a bond, this bond is also only at one cent. The invalidity of a RIN may not necessarily be the result of actions by a producer, and the replacement obligations should not end at the producer’s door. Further, the bond is intended to ensure EPA can recover penalties under an enforcement action for failure to comply with the regulations, and the one cent bond simply does not provide adequate incentives to ensure compliance. Thus, NBB believes the bond requirements should be increased for all foreign entities participating in the program and urges EPA to apply the same formulas to all foreign RIN owners under Section 80.1467 and foreign refineries under Section 80.1465.

While NBB believes additional regulations may be required for imports of fuel from overseas to ensure compliance with the RFS2 requirements, it also recognizes the ongoing and significant trade that occurs directly across the border, largely as a result of NAFTA. In addition, EPA has approved an aggregate approach for crops from Canada, and EPA has provided for

alternative methods for truck imports. *See, e.g.*, 40 C.F.R. § 80.1466(l).<sup>4</sup> NBB agrees that truck and rail imports crossing one land border do not present the same types of difficulties in tracking and enforcement as imports brought in through multiple countries or on vessels from overseas. Thus, the additional requirements proposed by NBB focus on imports from vessels and not on imports brought in on trucks or by rail across the border, and EPA should continue to consider additional flexibilities for imports by truck or rail, which we expect would largely be from Canada. While increased bonds may not be necessary for facilities located in Canada, this would not apply to shipments being sent to Canada from overseas and then transported into the United States by rail or truck.

Third, EPA proposes to amend Section 80.1466(h) to be consistent with paragraph (j)(4), which prohibits generating RINs in excess of the number for which the bond requirements have been satisfied. 78 Fed. Reg. at 36,066. NBB agrees that the language in paragraph (j)(4) is controlling, and supports the proposed changes. However, it is still not entirely clear as to when and how the bond is set and must be updated, or how the bond amounts are enforced. EPA also should provide additional information on how it assesses bonds, how it ensures that RINs generated do not exceed the bond amounts, and how it ensures that the bond is updated as required. For example, does EMTS limit the number of RINs that can be generated by a particular company/facility based on the bond posted? NBB is also concerned with companies that may create a shell company in the United States for the generation of RINs, and believes EPA should ensure appropriate bonds in the event a company generates RINs on behalf of a foreign entity. In addition, EPA appears to be requiring currently registered foreign producers to provide the required information, including an updated bond based on the revised requirements, by January 1, 2013. NBB supports requiring existing producers to update their bonds, but assumes EPA will revise this date to reflect the date the rule is finalized.

Finally, EPA proposes to add new provisions to require records submitted to EPA be in English or accompanied by an English translation. 78 Fed. Reg. at 36,066. These provisions include: (1) a new paragraph (i) to Section 80.1450 for any registration materials; (2) a new paragraph (h) to Section 80.1451 for any required reports; and (3) a new paragraph (q) to Section 80.1454 for any records submitted to EPA. *Id.* As with other records required to be retained, the translation and associated documents must be maintained by the submitting company for a period of five years. *Id.* NBB supports EPA's proposal, but notes a typographical error with respect to the purported addition of new Section 80.1450(i), which is listed as new Section 80.1450(h)(3)(vii), 78 Fed. Reg. at 36,075.

## II. NBB SUPPORTS INCREASING THE GALLON THRESHOLD FOR SMALL BLENDERS' DELEGATION OF RIN SEPARATION AND PROVIDING PRODUCERS ADDITIONAL FLEXIBILITY WITH RESPECT TO RIN TRANSFERS.

In its comments on the QAP Proposal, NBB explained why producers should be allowed to separate RINs, and asked for even greater flexibility for producers to transfer RINs in order to

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<sup>4</sup> The statute itself distinguishes fuel use in the contiguous United States, 42 U.S.C. § 7545(o)(2)(A)(i), and the United States shares a land border with Canada.

promote the production and sale of biofuels. EPA-HQ-OAR-2012-0621-0069 at 17-20. NBB continues to believe that the restrictions placed on the producers ability to separate RINs are unnecessary, have not contributed to the distortions in the market, and would not result in hoarding, if expanded. *See id.* EPA currently allows renewable fuel blenders who handle and blend less than 125,000 gallons of renewable fuel per year to delegate their RIN-related responsibilities to the party directly upstream from them who supplied the renewable fuel for blending. 40 C.F.R. § 80.1440. EPA notes that parties have indicated that the threshold is too low, and EPA seeks input on what a more appropriate gallon threshold should be. 78 Fed. Reg. at 36,064. Consistent with its prior comments, NBB agrees that the threshold is too low, and supports increasing the threshold to at least 250,000 gallons.

NBB has consistently indicated in its comments on the RFS2 regulations that the 125,000 gallon cap was too low, proposing a 250,000 gallon threshold. *See* EPA-HQ-OAR-2005-0161-2249 at 30-31 (incorporated by reference herein); *see also* EPA-HQ-OAR-2012-0621-0069 at 20. The upward delegation allows small blenders to compete in the market, and, based on economics of scale, allow biodiesel to compete better with other renewable fuels for these smaller markets. The 250,000 gallon proposed threshold was based on the experience of its producer members, many of whom service local and regional markets. *See, e.g.,* EPA-HQ-OAR-2005-0161-2172 at 5-7 (comments of Minnesota Soybean Processors on RFS2 May 2009 proposed rule). Other commenters agreed that the RFS2 compliance costs outweighed the benefit of discretionary blending for smaller blenders, recommending a higher threshold that was more in line with companies that could bear the financial burden of compliance. EPA-HQ-OAR-2005-0161-1002 at 1-2, 4 (comments of Fuel Marketing Corporation on RFS2 May 2009 proposed rule, suggesting a threshold of 1 million gallons). An arbitrarily low threshold for small blenders also would limit their incentives to blend renewable fuels at higher blend levels, even if the total amount of fuel they sold remained the same. Moreover, it is difficult to transfer a small amount of RINs, and it becomes more difficult for biodiesel producers to obtain the full value of their biodiesel, if they are forced to sell RINless biodiesel. Delegation also eases the administrative burdens associated with the program overall. *See, e.g.,* EPA-HQ-OAR-2005-0161-2329 at 78-79 (comments of the Renewable Fuels Association on RFS2 May 2009 proposed rule). Increasing the threshold also will ease the administrative burdens on EPA, reducing the number of required registrants.

The trends identified in response to the RFS2 May 2009 proposed rule continue to be true. Similar comments were made on the QAP Proposal that small producers find it difficult to sell their biodiesel due to the reluctance of small blenders (e.g., jobbers) who blend more than 125,000 gallons per year to participate in the RFS2 program. *See, e.g.,* EPA-HQ-OAR-2012-0621-0056 (Comments of Jatrodiesel); EPA-HQ-OAR-2012-0621-0043 (Comments of New Leaf Biofuel). The biodiesel marketplace is not as mature as other biofuel markets and many of the gallons sold are to discretionary blenders who are not obligated to use renewable fuels under the RFS. These parties, particularly in local and regional markets, often use biodiesel directly and are not obligated parties, nor do they want to be in the business of owning or selling RINs. As EPA is aware, just holding a RIN creates substantial recordkeeping and reporting requirements, including attest engagements. Attest engagements can be expensive, and

represent a significant expense for smaller entities. These compliance costs become more manageable based on larger volumes of gallons and RINs.<sup>5</sup> Additional flexibility for producers to continue to service this market is necessary.

As NBB stated in its comments on EPA's QAP Proposal, EPA-HQ-OAR-2012-0621-0069 at 20, the 125,000 gallon cap is arbitrary and unsupported. In response to comments on the RFS2 proposed rule indicating that 125,000 gallons was too small to cover many of the local jobbers, EPA simply asserted it believed the 125,000 gallons was a "correct balance," so that non-obligated parties cannot influence the RIN market. EPA, Renewable Fuel Standard Program (RFS2) Summary and Analysis of Comments at 5-15 (Feb. 2010) (EPA-HQ-OAR-2005-0161-3188). Thus, the only argument in support of this arbitrarily low threshold is the unsupported fear that producers will "hoard" RINs. But, there are numerous parties that hold RINs that are not obligated parties, and there is no limit on how many separated RINs a party can have. Producers want to sell their fuel and have no incentive to "hoard" RINs. As NBB further explained, it is not the ability of producers to hold separated RINs that has manipulated the RIN market. EPA-HQ-OAR-2012-0621-0069 at 17-20. Moreover, ensuring continuation of these markets allows for the easier compliance with the RFS2 volume requirements, as the fuel can be used locally rather than shipped to obligated parties. The refusal of certain obligated parties to purchase actual gallons of fuel requires producers to seek other customers for their fuel. Renewable fuel producers must retain the ability to service these other markets. As the volumes continue to increase, EPA should encourage parties to enter the market and, thus, provide alternatives to the substantial administrative requirements of participating in the RFS2 program. These other customers, while wanting the renewable fuel, are often reluctant to become RIN owners and become subject to numerous requirements under EPA's regulations.

NBB also proposed additional revisions to increase the producers' flexibility in transferring RINs and reiterates those here.<sup>6</sup> EPA-HQ-OAR-2012-0621-0069 at 17-20. This includes (1) adjusting the quarterly true-up provisions to eliminate the arbitrary deadline placed on producers to move their biofuel and RINs, and (2) adjusting the number of assigned RINs that can be transferred based on the applicable equivalence value.

First, the quarterly true-up requirements are not necessary as producers have every incentive to sell the RINs as quickly as possible as the RIN value goes toward operating costs, and should be eliminated altogether. Indeed, the RINs have a limited life, and it makes little sense for producers to hold onto assigned or separated RINs. Alternatively, EPA can instead impose a requirement to transfer any assigned RINs 90 days from generation. Requiring this true-up at the end of each quarter is an arbitrary deadline established by EPA. If hoarding is a

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<sup>5</sup> This arbitrarily low threshold also allows some larger blenders to take advantage of lower prices through larger purchases, resulting in increased costs to small blenders that cannot purchase from producers and purchase from these entities instead. See EPA-HQ-OAR-2012-0621-0048 (Comments of Thumb Energy).

<sup>6</sup> In the QAP Proposal, EPA requested comments on whether it should prohibit producers from separating RINs. 78 Fed. Reg. at 12,168-12,169. NBB opposed such a prohibition, and reiterates the need to continue to allow producers to deal with the needs of the market, incorporating its comments by reference. EPA-HQ-OAR-2012-0621-0069 at 17-18.

valid concern, putting the producers on a clock to transfer the RINs from generation serves the same purpose, but would not create the problems that arise at the end of each quarter for batch plants.

Second, NBB requests again that the 2.5 RIN limit for transferring of assigned RINs be adjusted to, at a minimum, reflect the applicable equivalence factor of the relevant fuel (e.g., 3 RINs for biodiesel). This would reduce calculation errors. There is nothing magical about the 2.5 number, which is merely a relic of a prior statutory provision removed by EISA and the RFS1 regulations. EPA provided no explanation why it believed the 2.5 number provided producers with sufficient flexibility, and it has affected the ability of producers to service smaller customers and local markets. EPA should continue to require separation of all assigned RINs associated with the gallon of fuel.

III. WHILE NBB SUPPORTS EPA'S LIMITATION ON EXTENSIONS OF THE SMALL REFINERY EXEMPTION, IT DOES NOT AGREE SUCH EXTENSIONS CONTINUE TO BE WARRANTED.

EPA proposes modifying the definition of small refineries so that the crude throughput threshold of 75,000 bpd must apply in 2006 and in all subsequent years to support any continued exemption from the program. 78 Fed. Reg. at 36,064. Thus, to qualify for an extension of the small refinery exemption, a refinery must meet the definition of "small refinery" for all full calendar years between 2006 and the date of submission of the petition for an extension. *Id.* While NBB agrees that the exemption provided by Congress was limited to "only truly small facilities" and, thus, agrees with the proposed revision, it believes that such extensions are no longer warranted or authorized. Moreover, as NBB has previously explained, EPA should not grant such extensions without appropriately adjusting the renewable fuel standards (in percent) to account for the small refinery exemptions. NBB incorporates by reference its comments on the proposal for the 2013 Renewable Fuel Standards. EPA-HQ-OAR-2012-0546-0069 at 19-20.

Small refineries were granted temporary exemptions from the RFS program until December 31, 2010. 42 U.S.C. § 7545(o)(9)(A). The Department of Energy ("DOE") was tasked with conducting a study for EPA by December 31, 2008 to determine whether the RFS would impose a disproportionate economic hardship on small refineries. *Id.* If DOE found a disproportionate economic hardship, EPA was to extend the "temporary" exemption for not less than two additional years. The statute also allows a particular small refiner to petition for "an extension" at any time based on disproportionate economic hardship. *Id.* § 7545(o)(9)(B). However, the statute provides for a one time extension, not an ongoing ability to seek relief. Moreover, EPA indicated that it has not granted any exemptions for small refineries or small refiners for 2013. 78 Fed. Reg. 9282, 9303 (Feb. 7, 2013). The exemption gives small refineries additional time to prepare for the requirements, not to come in years later and seek relief. Further, it is clear that Congress did not intend for small refineries to enter in and out of the program, even in the face of subsequent economic distress. The statute provides for "an extension" of the exemption for at least two years. 42 U.S.C. § 7545(o)(9)(A). EPA's own regulations indicate that the small refinery may seek "an extension of its small refinery

exemption,” not a new exemption once it has entered the RFS program. 40 C.F.R. § 80.1441(e)(2).

EPA also noted the possibility that petitions may be submitted after the proposal for the 2013 RFS. 78 Fed. Reg. at 9303. While the statute allows a small refinery to petition EPA “at any time” for such an extension, which must be acted on within 90 days, 42 U.S.C. § 7545(o)(9)(B), the “at any time” cannot reasonably be read to allow for a petition for a new exemption or an extension once the small refinery has entered the program. Moreover, nothing in the provisions related to small refineries gives EPA authority to waive the statutory volumes to allow any extensions or to decline to adjust the RFS to, as required by statute, “ensure” the required volumes are met in the event of such a grant. *Id.* § 7545(o)(2)(A)(i).

IV. NBB AGREES THAT EPA SHOULD PROVIDE MORE FLEXIBILITY AS TO WHEN A PRODUCER MUST REPORT THE TRANSFER OF FUEL AND RINS, BUT ALSO REQUIRES MORE FLEXIBILITY AS TO WHEN IT MUST TRANSFER AN ASSIGNED RIN.

The preamble to the Technical Amendments Proposed Rule describes an alternative method for reporting the transfer of RINs in the EMTS. 78 Fed. Reg. at 36,064. The alternative method described is the same as that proposed in EPA’s QAP Proposal. The proposed regulatory language, however, is not provided, although the Technical Amendments Proposed Rule does include additional changes to Section 80.1452(c) that were not in the QAP Proposal. *Compare* 78 Fed. Reg. at 12,211 (proposed new §80.1452(d)) *with* 78 Fed. Reg. at 36,075 (proposed revised §80.1452(c)). These additional changes are including a reference to the exporter RVO in Section 80.1430(f) and removing the definition of “reportable event” for RIN sales. EPA does not explain the purpose of the proposed changes provided in the Technical Amendments Proposed Rule, and thus NBB cannot meaningfully comment on the proposed changes.

In the preamble, EPA only purports to propose an alternative to the five and ten business days by when a seller and buyer must report a RIN transaction into the EMTS. This alternative method would provide as follows:

We propose that sellers of assigned RINs under the alternative method be required to do the following:

- Within five (5) business days of shipping renewable fuel with assigned RINs, report a sell transaction, using the alternative method, via EMTS;
- Include in the EMTS sell transaction report other required information per section 80.1452; and
- Provide a PTD to the assigned RIN buyer with a unique identifier, also reported via EMTS, in addition to the

information in section 80.1453. The date of transfer is not required for the alternative method.

We propose that buyers of assigned RINs under the alternative method be required to do the following:

- Within five (5) business days of receiving a shipment of renewable fuel with assigned RINs, report a buy transaction, indicating use of the alternative method, via EMTS;
- Include in the EMTS buy transaction report other required information per section 80.1452;
- Include in the EMTS buy transaction report the unique identifier provided by the seller; and
- Include in the EMTS buy transaction report the date the renewable fuel was received, i.e. the date of transfer.

78 Fed. Reg. at 36,064. As outlined in its comments to the QAP Proposal, EPA-HQ-OAR-2012-0621-0069 at 20-21, NBB supports providing additional flexibility for reporting in the EMTS, as the five days and ten days to enter RIN transactions into the EMTS often create more errors and the need to resubmit transactions merely because the information is not accepted on time.

But, as outlined in its comments to the QAP Proposal, NBB believes that additional conforming changes may be needed with respect to the provisions requiring transfer of RINs with the transfer of the fuel. EPA-HQ-OAR-2012-0621-0069 at 20-21, Part 1 to App. A. The concerns regarding the timing of reporting transactions into the EMTS is due to the reference to the date of transfer, which EPA has interpreted as being transfer of title. 40 C.F.R. § 80.1452(c) (“The reportable event for a RIN purchase or sale occurs on the date of transfer per § 80.1453(a)(4).”). The proposed regulatory language in the Technical Amendments Proposed Rule would eliminate this language. To the extent EPA intends to provide the parties flexibility to define the “reportable event,” NBB supports this revision, but requests that EPA provide an explanation and confirmation as such. Also, NBB proposed additional changes to the regulatory language, which are incorporated herein by reference. EPA-HQ-OAR-2012-0621-0069 at 20-21, Part 1 to App. A. In short, NBB believes that the parties should define the “date of transfer,” and it need not be the date title is transferred. Buyers and sellers of fuel should be able to determine the appropriate terms of sale, including transfer of title to the fuel and RIN.

EPA’s proposed revised language to Section 80.1452(c) would also now require reporting of RIN transactions into the EMTS within five days of the reportable event “except as provided in §80.1430(f).” 78 Fed. Reg. at 36,075. The Technical Amendments Proposed Rule does not include any proposed revision to Section 80.1430(f). Section 80.1430(f) currently provides that “[e]ach exporter of renewable fuel must demonstrate compliance with its RVOs pursuant to § 80.1427.” 40 C.F.R. § 80.1430(f). This relates to an annual compliance, and not



with respect to any specific RIN transactions. It is unclear the need for this change, and NBB requests clarification as to the intent of the proposed revision.<sup>7</sup>

V. EPA SHOULD CONTINUE TO USE ITS ENFORCEMENT DISCRETION TO ASSIGN APPROPRIATE PENALTIES.

EPA is also proposing changes to Section 80.1463 to purportedly “confirm that each day an invalid RIN remains in the marketplace is a separate day of violation.” 78 Fed. Reg. at 36,065. As EPA recognizes, the current regulations provide that “any person . . . is liable for a separate day of violation for each day such a requirement remains unfulfilled.” *Id.* (quoting 40 C.F.R. § 80.1463(c)).

We are proposing to amend section 80.1463 to more explicitly incorporate EPA’s interpretation of these penalty provisions into the regulations. The amendments would state that any person liable for a violation of section 80.1460(b) for creating or transferring an invalid RIN, or for causing another person to create or transfer an invalid RIN, is subject to a separate day of violation for each day that the invalid RIN remains available for use for compliance purposes, and EPA has the authority to seek the maximum statutory penalty for each day of violation. EPA will apply the statutory factors in sections 211(c) and 205(b) of the CAA to evaluate the appropriate penalties for each violation on a case by case basis.

*Id.* The proposed amendment (new § 80.1463(d)) would provide as follows: “(d) Any person violating § 80.1460(b)(1)–(4) or (6) engages in a separate violation for each day that an invalid RIN **remains available for use in RFS compliance**, and each such daily violation is punishable by the maximum daily penalty allowed under the Clean Air Act.”<sup>8</sup> *Id.* at 36,076 (emphasis added). NBB questions the need to include this change in the regulatory language, and believes EPA should continue to simply utilize its enforcement discretion in setting the appropriate penalties.

While NBB supports strong enforcement of the RFS2 requirements and believes EPA should provide guidance as to how it interprets its enforcement authority, NBB does not believe that EPA needs to make such a change to the regulations. Producers are aware that

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<sup>7</sup> EPA also refers to retirement provision “as would apply under today’s proposal to exporters of renewable fuel or parties using fuel produced as renewable fuel for a use other than a transportation fuel, heating oil or jet fuel.” 78 Fed. Reg. at 36,065. The Technical Amendments Proposed Rule, however, does not appear to have included the relevant proposed changes related to such provisions.

<sup>8</sup> These violations include: (1) generating a RIN for a fuel that is not a renewable fuel, or for which the applicable renewable fuel volume was not produced; (2) creating or transferring to any person a RIN that is invalid under § 80.1431; (3) transferring to any person a RIN that is not properly identified as required under § 80.1425; (4) transferring to any person a RIN with a K code of 1 without transferring an appropriate volume of renewable fuel to the same person on the same day; and (6) generating a RIN for fuel for which RINs have previously been generated. 40 C.F.R. § 80.1460(b)(1)–(4), (6).

they are subject to penalties per day of violation, and have every incentive to come into compliance under the existing regulations. EPA's proposed revision would only cause confusion and may create disincentives for producers to self-report and take corrective actions, rather than promote compliance.

NBB is concerned that there are numerous circumstances that may delay or postpone retirement of an invalid RIN. Under the proposed revision, for producers, the violations would be from the date of generation until corrective action is taken by the producer to remove the RIN or the RIN is retired by a third party. But, often a producer has self-reported an issue and EPA does not provide prompt responses as to the means to correct the RIN. A response from EPA can take months, and, in the meantime, a producer awaits in limbo, unsure if the RIN is invalid or of the proper action to take. Moreover, an invalid RIN can remain available for use in certain cases, such as those circumstances under 40 C.F.R. § 80.1431(c), and EPA has proposed to allow certain invalid RINs to remain "available for use" under the QAP Proposal. Also, whether the actual RIN is retired and when is often not in the hands of the producer, and it would be unfair to hold the producer liable to the extent the obligated party chooses to hold that RIN to use it the next year. Further, the similar provisions cited by EPA as precedent are inapposite to the RFS2 program. See 40 C.F.R. § 80.615 (addressing violations of diesel fuel standards and limiting potential time frame a violative fuel "remain[s] in the diesel fuel distribution system" to 25 days). Thus, NBB believes the regulatory language is inconsistent with EPA's QAP Proposal and does not adequately address the different circumstances that may arise with respect to invalid RINs and taking corrective actions. As such, NBB opposes this proposed amendment, and believes when a separate day of violation ends is best determined under the specific circumstances of the particular case.

VI. NBB GENERALLY AGREES THAT EPA SHOULD CANCEL REGISTRATIONS TO THE EXTENT A PARTY HAS NO REPORTED ACTIVITY AND SHOULD UPDATE THE PUBLIC AS TO INELIGIBLE REGISTRANTS, BUT IS CONCERNED THAT EPA'S PROPOSAL IS TOO STRINGENT AND INTERNALLY INCONSISTENT.

EPA proposes to add Section 80.1450(h) to describe the circumstances under which EPA may cancel a company registration. 78 Fed. Reg. at 36,064. These circumstances include (a) if the company has reported no activity in the EPA Moderated Transaction System for one year or (b) if the party fails to comply with any registration requirement of Section 80.1450, fails to submit any required compliance report under Section 80.1451, fails to meet the requirements related to EMTS under Section 80.1452, or fails to meet the requirements related to attest engagements under Section 80.1454. In the latter case, EPA would initiate cancellation process if any required report is 30 or more days overdue, giving the registrant 14 days to provide a "satisfactory response." *Id.* "Re-registration would be possible following the standard registration procedures." *Id.* NBB generally supports cancelling a registration for non-activity in the EMTS for one year. However, it believes that cancellation of a registration under the second set of circumstances is unnecessary and inconsistent with other provisions. Again, NBB questions how this provision interacts with the provisions in the QAP Proposal, and request further explanation as to how the provisions are intended to operate. Moreover, to the extent,

EPA does finalize the provisions, it should make clear that a response by a producer does not admit liability or waive any potential defenses or arguments for no or reduced penalties.

At a minimum, EPA must clarify the proposed circumstances under which it may cancel a registration. First, the proposed regulation provides that EPA “may cancel” a registration if “the company . . . has failed to meet *any* EMTS requirement under § 80.1452.” 78 Fed. Reg. at 36,074 (proposed new § 80.1450(h)(1)(i)) (emphasis added). A producer must submit numerous transactions into the EMTS with a lot of information under strict time frames. It is unclear if EPA believes it may cancel a registration any time a party may be a day late or entered the wrong feedstock code. This is overly broad, and should be deleted.

Second, the proposed regulation provides that EPA “may cancel” a registration if the “company has failed to comply with the registration requirements of this section.” 78 Fed. Reg. at 36,074 (proposed new § 80.1450(h)(1)(ii)). In such a case, it is unclear how a company has any registration to cancel. Moreover, to the extent a producer is working with EPA to ensure its registration is updated and sufficient information is provided, NBB does not believe cancellation of the registration is warranted. Thus, NBB believes additional clarification as to the circumstances that could trigger a cancellation is needed.

Finally, the proposed regulation provides that EPA “may cancel” a registration if the company “has failed to submit any required report within thirty (30) days of the required submission date under § 80.1451” or the “attest engagement required under § 80.1454 has not been received within thirty (30) days of the required submission date.” 78 Fed. Reg. at 36,074 (proposed new § 80.1450(h)(1)(iii), (iv)). While NBB agrees that EPA should be able to cancel a registration if there has been no activity on the EMTS for a year, which likely would be attendant by a lack of other required reports, it is unclear the need for additional provisions to initiate a cancellation process based on the failure to submit one report. Such failure could be inadvertent or due to the lack of production in any one quarter. Moreover, it is unclear how EPA will determine what reports are required in any particular quarter.

In addition, the process provided by EPA appears wholly insufficient with respect to the potential gravity of missing one report. Fourteen days may be insufficient to engage in corrective action, particularly with respect to attest engagements, despite all reasonable efforts of the producer to submit the missing reports. The only other provision we found where EPA provides for a process regarding notice of intent to cancel a registration is under 40 C.F.R. § 79.51(f)(6), where EPA provides 60 days to provide a response and allows for an informal hearing. Indeed, for facilities that have not submitted any information to EMTS for one year, EPA merely requires a letter noting an “intent to engage in activity” within the next calendar year. 78 Fed. Reg. at 36,074 (proposed new § 80.1450(h)(2)(ii)). Producers should be able to self-report and correct such violations without facing undue penalties or cancellation of their registration. Moreover, while EPA purports to allow the company to re-register, the company must engage in a whole new process, including presumably a new third party engineering report, which can take months and can be expensive. Cancellation also may place a black mark on a facility that otherwise is fully compliant with this complex program for simply missing one

report. This added penalty is unwarranted. Again, NBB supports strong enforcement of the RFS2 requirements, but NBB is concerned that EPA is adding undue administrative burdens to address paperwork violations where the enforcement efforts would be better spent elsewhere.

## VII. EPA HAS NOT EXPLAINED THE RATIONALE FOR VARIOUS PROPOSED REGULATORY CHANGES.

The Technical Amendments Proposed Rule contains various revisions that are not identified or explained in the preamble. In particular, the proposed regulatory language includes revisions to Section 80.1427(a), which provides the calculations for demonstrating compliance with renewable volume obligations. 78 Fed. Reg. at 36,073. There are also proposed changes to the recordkeeping requirements under Section 80.1454(a) and (b). The preamble, however, provides no explanation for these proposed changes.

The Clean Air Act requires EPA to provide notice of its proposed rule through a statement of its basis and purpose, and to give the public a meaningful opportunity to comment. 42 U.S.C. § 7607(d)(3), (4), (5); *see also* 5 U.S.C. § 553(b), incorporated by reference in 42 U.S.C. § 7607(d)(3). The statement of basis and purpose must include a summary of— (A) the factual data on which the proposed rule is based; (B) the methodology used in obtaining the data and in analyzing the data; and (C) the major legal interpretations and policy considerations underlying the proposed rule. 42 U.S.C. § 7607(d)(3). “The significance of rulemaking cannot be underemphasized. It gives parties affected by a decision an opportunity to participate in the decision-making process and forces EPA to articulate the bases for its decisions.” *Donner Hanna Coke Corp. v. Costle*, 464 F. Supp. 1295, 1305 (W.D.N.Y. 1979) (citation omitted); *see also Env'tl. Integrity Project v. EPA*, 425 F.3d 992, 996 (D.C. Cir. 2005); *Weyerhaeuser Co. v. Costle*, 590 F.2d 1011, 1028 (D.C. Cir. 1978). EPA provides no such explanation for these proposed changes.

With respect to Section 80.1427, it would appear that some of the changes merely separate out the RVO for obligated parties and the RVO for exporters. It is possible that the revisions are intended to be read in conjunction with the proposed changes to Section 80.1430 in the QAP Proposal. 78 Fed. Reg. at 12,208. But, the references are not consistent. For example, the QAP Proposal appears to refer to an obligation per a discrete export volume, while the Technical Amendments Proposed Rule appears to continue to reference an annual obligation for calendar year  $i$ .<sup>9</sup> Moreover, there are additional changes that are more than merely technical in nature. For example, EPA appears to be limiting the use of prior year RINs (i.e.,  $RINNUM_{i-1}$ ) to meet the exporter RVO (i.e., only for exports in January of calendar year  $i$ ), and appears to be adding a limitation with respect to the RINs that can be used to meet the exporter RVO for renewable fuel, referencing “(D code 6).” It is also unclear why EPA is proposing to delete the provision that “RINs used to demonstrate compliance in one year cannot be used to demonstrate compliance in any other year.” 40 C.F.R. § 80.1427(a)(6)(ii). EPA should explain the basis for the changes and give the public a meaningful opportunity to

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<sup>9</sup> The equations themselves are also internally inconsistent (e.g., defining  $ERVO_{CB,i}$  where the equation uses  $ERVO_{CB,k}$ ; referring to “an export of renewable fuel  $k$ ”).

comment. At a minimum, EPA should consider these revisions in conjunction with its final rule in response to the comments on the QAP Proposal, in which EPA requested comment on whether the exporter RVO should continue to be annual. In its comments on the QAP Proposal, NBB submitted numerous recommendations for ways to revise the provisions related to exporters of renewable fuel, including requiring that RINs be retired within 30 days of export rather than providing for annual compliance. NBB incorporates these comments by reference herein. EPA-HQ-OAR-2012-0621-0069 at 52-55.

There are also proposed revisions to the recordkeeping requirements that, again, appear related to proposed changes to the program under the QAP Proposal. 78 Fed. Reg. at 36,075 (proposed revised § 80.1454(a)(7), (f)(5) relating to volume of fuel disqualified under § 80.1433). Other changes appear to require retention of records related to RIN separation and records related to volumes of renewable fuel for which RINs were not generated. *Id.* (proposed revised § 80.1454(b)(4)(i), (b)(7), (f)(3)(i)). In particular, NBB requests an explanation as to the recordkeeping requirement with respect to fuel for which no RINs were generated. Again NBB requests an explanation of these provisions, and requests, to the extent they relate to the QAP Proposal, indicate as much and consider these revisions in conjunction with that proposal. In either case, EPA must provide the parties with the information required under Section 307(d) to ensure proper notice. 42 U.S.C. § 7607(d).

#### VIII. NBB GENERALLY SUPPORTS EPA'S ADDITIONAL PROPOSED TECHNICAL AMENDMENTS.

Crop Residue: EPA proposes to revise the definition of “crop residue” to, among other things, add a requirement that the biomass be considered crop residue “only if the use of that biomass for the production of renewable fuel has no significant impact on demand for the feedstock crop, products produced from that feedstock crop, and all substitutes for the crop and its products, nor any other impact that would result in a significant increase in direct or indirect GHG emissions.” 78 Fed. Reg. at 36,071. NBB does not necessarily oppose the revisions, but EPA does not define the term “significant” here nor has it provided clear guidance as to what may be “significant” with respect to assessing greenhouse gas (“GHG”) emissions under the statute. Thus, it appears that EPA will be making a case-by-case determination with respect to any particular feedstock to determine if it is “crop residue.” These considerations, however, are similar to those with respect to other general categories of feedstock (e.g., waste oil). EPA should be consistent across feedstocks, and should be more transparent with the public as to what feedstocks actually qualify under these general terms.

The statute only requires consideration of “significant indirect emissions such as significant emissions from land use changes.” 42 U.S.C. § 7545(o)(1)(H). This has led EPA to define various feedstocks based, in part, on impacts on demand or availability of other markets, such as annual cover crops and waste oils. While these feedstocks are technically approved and listed under 40 C.F.R. § 80.1426, Table 1, EPA has not yet provided a consistent definition. Rather, EPA is engaged in case-by-case determinations, which have not been subject to public scrutiny. Without clear guidance, the public cannot adequately determine what feedstock may qualify, and it would not appear that these considerations are being applied consistently across

feedstocks. For example, EPA's revised definition of annual cover crop requires "no existing market to which it can be sold except for its use as feedstock for the production of renewable fuel." 40 C.F.R. § 80.1401. As NBB explained in its comments on the proposed definition, having alternative markets is a factor in how farmers determine what cover crops to use. See EPA-HQ-OAR-2010-0133-0159 at 27-29. The primary crop remains the main economic driver for the farmer. Even with respect to "crop residue," EPA indicates it may reassess the determination if a "significant" demand develops in the future. NBB also believes that numerous feedstocks have been delayed in assessing the lifecycle analysis based on unnecessary modeling due to "any" available market. See EPA-HQ-OAR-2012-0546-0069 at 12. Many of these feedstocks, by all other accounts, would not have significant impacts on markets that may result in significant indirect emissions.

EPA must keep in mind that one of the main purposes of the RFS2 was to expand feedstocks used, not to unduly restrict them. See S. Rep. No. 110-65 at 2-3 (2007) ("Diversifying feedstocks to include a broader array of renewable biomass can promote regional diversity in biofuels production and distribution, spreading economic benefits to rural communities across the country and relieving pressure on corn commodity prices. In addition, it can lead to greater efficiency in the fuel-production process and help save on fossil fuel emissions."). Diversification of feedstocks is necessary to ensure continued growth of the industry and to promote more advanced fuels. While NBB appreciates the difficulty in conducting the analysis established by EPA, Congress could not have envisioned long delays in approving new, environmentally friendly feedstocks. It is reasonable for EPA to determine that these smaller, alternative feedstocks would have little, if any, indirect impacts. Thus, while NBB takes no position on whether the definition of crop residue is appropriate, NBB requests that EPA provide clear guidance and consistency as to what it views as a significant increase in demand and what is a "significant increase" in indirect emissions, and work toward facilitating approval of feedstocks.

**Nameplate Capacity:** In order to register under the RFS2 program, EPA requires renewable fuel producers to establish and provide documents to support their facility's baseline volume as defined in Section 80.1401, even if the producer is not seeking grandfathering status. 78 Fed. Reg. at 36,066; 40 C.F.R. § 80.1450(b)(1)(v). Baseline volume is defined as the permitted capacity or, if permitted capacity cannot be determined, the actual peak capacity of a specific renewable fuel production facility on a calendar year basis. 40 C.F.R. § 80.1401. For a facility that is not required to obtain a permit or a facility that is not operational for a full calendar year, EPA is proposing to allow a facility to use its "nameplate capacity" to establish its facility's baseline volume for the purposes of registration. 78 Fed. Reg. at 36,066. This alternative would apply, only if (1) the facility does not have a permit or there is no limit stated in the permit to establish their permitted capacity, and (2) has not started operations or does not have at least one calendar year of production records, and (3) *does not claim exemption from the 20 percent GHG threshold under Section 80.1403*. *Id.* EPA proposes to define "nameplate capacity" as "the peak design capacity of a facility for the purposes of registration of a facility under § 80.1450(b)(1)(V)(E)." *Id.* at 36,071. As an initial matter, this cross-reference appears to be incorrect, and should be Section 80.1450(b)(1)(v)(C).

Although NBB questions the need to continue requiring reporting of baseline volumes, NBB agrees facilities that are not grandfathered should be allowed to utilize their nameplate capacity, and that this alternative should not apply to grandfathered facilities. However, the proposed regulatory language only provides such alternative to use nameplate capacity “[f]or facilities claiming the exemption described in § 80.1403(c) or (d).” 78 Fed. Reg. at 36,074 (proposed 40 C.F.R. § 80.1450(b)(1)(v)(C)(2)). Moreover, non-grandfathered facilities should be able to utilize their nameplate capacity for purposes of registering under the RFS2 program regardless of their permit or operational status. The baseline volume in such circumstances merely provides EPA with information regarding the potential production capacity of the facility, and the only limitation in defining production capacity in these circumstances should be based on the design. Thus, to the extent EPA continues to believe that non-grandfathered facilities should continue to be required to report baseline volumes, NBB suggests the following revision to replace proposed Section 80.1450(b)(1)(v)(C)(2) (Deletions in strikethrough, additions in bold, italics): “***Except for*** facilities claiming the exemption described in § 80.1403 (c) or (d) ~~which are exempt from air permit requirements and for which insufficient production records exist to establish actual peak capacity~~, ***producers may report the nameplate capacity and provide*** copies of document demonstrating the facility’s nameplate capacity, as defined in § 80.1401.” Indeed, NBB notes that any facility seeking to utilize the exemption under Section 80.1403 must have made such designation by July 1, 2013. Thus, there would not appear to be any need to change the definition of “baseline” volumes for these facilities, and it may be helpful if EPA clarified the entire provision to be clear as to what (and why) production capacity must be reported as part of the registration process.

\* \* \*

We are happy to discuss this matter further and address any questions you may have. Thank you in advance for your consideration of this issue.

Sincerely,



Anne Steckel  
Vice-President, Federal Affairs  
National Biodiesel Board

A/75642466.2

July 15, 2013

*VIA ELECTRONIC FILING*

EPA Docket Center, EPA West Building (Air Docket)

Attention: **Docket ID No. EPA-HQ-OAR-2012-0401**

U.S. Environmental Protection Agency

Mail Code: 6406

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Washington, DC 20460

*VIA EMAIL*

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**Re:** Comments of the Renewable Fuels Association; Regulation of Fuels and Fuel Additives: RFS Pathways II and Technical Amendments to the RFS2 Standards; Proposed Rule (78 Fed. Reg. 36,042; Docket No: EPA-HQ-OAR-2012-0401)

Dear Mr. Sopata:

The Renewable Fuels Association (RFA) is pleased to submit the following comments in response to the U.S. Environmental Protection Agency's (EPA) notice of proposed rulemaking: RFS Pathways II and Technical Amendments to the RFS2 Standards. 78 Fed. Reg. 36,042 (June 14, 2013).

RFA is the leading trade association for America's ethanol industry. Its mission is to advance the development, production, and use of fuel ethanol by strengthening America's ethanol industry and raising awareness about the benefits of renewable fuels. Founded in 1981, RFA serves as the premier meeting ground for industry leaders and supporters. RFA's 300-plus members are working to help America become cleaner, safer, more energy secure, and economically vibrant.

We applaud EPA for confirming that corn kernel fiber is "crop residue," and believe the Agency has proposed a sensible and straightforward approach to RIN generation for renewable fuels derived from cellulosic biomass feedstocks. Several technologies to convert corn kernel fiber into cellulosic ethanol have been developed in recent years, and a number of existing ethanol plants have already adopted these technologies or are poised to integrate them in the near future. However, to date, uncertainty over the status of corn kernel fiber as a qualifying feedstock for the RFS2 has hampered broader adoption of these technologies and held back a potentially significant source of cellulosic biofuel RIN generation. Therefore, we urge EPA to finalize this rule (after considering our comments



below) as expeditiously as possible. The volumes of cellulosic ethanol produced from corn kernel fiber can meaningfully contribute to RFS2 cellulosic biofuel requirements in the near term.

While RFA agrees with and strongly supports most of the amendments and technical changes proposed by EPA, we offer several recommendations that we believe would further improve the rule. Below are RFA's comments on specific aspects of the proposed rule.

**1. RFA strongly supports the proposal to clarify that corn kernel fiber meets the existing definition of "crop residue."**

The ethanol industry strongly backs EPA's proposal to confirm that corn kernel fiber is a crop residue, and thus renewable fuel produced from corn kernel fiber qualifies for cellulosic biofuel RIN (D3 or D7) generation. Crop residue is defined in §80.1401 of the RFS2 regulations as "the biomass left over from the harvesting *or processing* of planted crops..." (emphasis added). After initially proposing to only include biomass left over from harvesting, in the RFS2 final rule EPA noted that it agreed with public comments "...encouraging us to expand the definition of crop residue to include the materials left over after the processing of the crop into a useable resource, such as husks, seeds, bagasse, and roots."<sup>1</sup>

Notably, EPA projected that crop residues such as sugarcane bagasse and sweet sorghum pulp would account for considerable volumes of cellulosic biofuel by 2022.<sup>2</sup> Corn fiber, like bagasse and sweet sorghum pulp, also is derived from the processing of planted crops, and is commonly considered a "crop residue" or "agricultural residue." A review of the scientific literature's treatment of "agricultural" or "crop" residues confirms that corn fiber is commonly understood to be a crop residue. Indeed, corn fiber is often mentioned alongside corn stover, bagasse, and other crop residues as potential feedstocks for cellulosic biofuel production.<sup>3</sup>

EPA did not intend for "crop residue" to be limited to specific enumerated examples cited at various points in the pre-amble of the RFS2 final rule. Rather, any crop residue that meets the regulatory definition would qualify. EPA's broad approach to qualifying biomass is demonstrated in its response to comments on the RFS2 final rule. There, EPA declined to alter the definition of cellulosic biofuel to include specific examples of crop residues, noting

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<sup>1</sup> 75 Fed. Reg. 14,692; see *also* RFS2 Summary and Analysis of Comments, 3-48.

<sup>2</sup> 75 Fed. Reg. 14,754.

<sup>3</sup> See, e.g., Arantes, Valdeir, and Jack N. Saddler. "Cellulose Accessibility Limits the Effectiveness of Minimum Cellulase Loading on the Efficient Hydrolysis of Pretreated Lignocellulosic Substrates." *Biotechnology for Biofuels* 4.3 (2011): 1-16. "the agricultural residues (corn stover and corn fiber) required significantly lower protein loadings..."; Biswas, Atanu, Badal C. Saha, John W. Lawton, R. L. Shogren, and J. L. Willett. "Process for Obtaining Cellulose Acetate from Agricultural By-products." *Carbohydrate Polymers* 64 (2006): 134-37. "Agricultural residues such as corn fiber, rice hulls and wheat straw can be used as abundant low-cost feedstock for production of fuel ethanol."

that the existing definition's reference to "any" cellulose, hemicellulose, or lignin made it clear that the crop residues cited by the commenter were included.<sup>4</sup>

Clearly, corn kernel fiber is a "crop residue" and is "cellulosic biomass." Thus, under the plain language of the regulations, ethanol derived from corn kernel fiber is covered under the existing pathway for "cellulosic biomass from crop residue," is eligible to generate cellulosic biofuel RINs, and does not need to petition for a new pathway under §80.1416 of the regulations. Accordingly, we support EPA's confirmation that corn kernel fiber is "crop residue."

**2. We support EPA's proposal to allow 100% of the volume of renewable fuel produced from cellulosic feedstocks listed in §80.1426 to generate cellulosic biofuel RINs (D3 or D7).**

As acknowledged by EPA, "...no plant matter can ever consist entirely of cellulose, hemicellulose, and lignin."<sup>5</sup> In addition to cellulose, hemicellulose, and lignin, the feedstocks designated by EPA as "cellulosic biomass" may also contain small amounts of sugars, starches, proteins, lipids and other compounds. Because cellulosic biomass feedstocks are not entirely comprised of cellulosic material, there has been some confusion and uncertainty among cellulosic biofuel producers regarding proper RIN generation procedures.

In response, EPA is proposing a practical and straightforward approach that allows 100% of the volume of renewable fuel produced from previously approved cellulosic feedstocks to generate cellulosic biofuel RINs (D3 or D7). RFA strongly supports this approach, as it is legally defensible, technically practical, and cost effective for biofuel producers. Further, we agree with EPA that this approach best supports Congress' intent to "...promote the use of cellulosic biofuel and achieve the associated greenhouse gas emissions reductions."<sup>6</sup>

As noted in the proposal, EPA has already established a precedent for generating RINs in situations where the qualifying feedstock contains de minimis contaminants. We agree that the precedent established for separated food waste and the biogenic portions of separated MSW is applicable to crop residue and other cellulosic biomass feedstocks. Further, the existing language in §80.1426(f) (i.e., "In choosing an appropriate D Code, producers may disregard any incidental de minimis feedstock contaminants") appears broadly applicable to all qualifying cellulosic biomass feedstocks.

We agree with the Agency's determination that the approved cellulosic biomass feedstocks appearing in Table 1 to §80.1426 are likely to contain 80-95% cellulose, hemicellulose, and lignin and are therefore "comprised predominantly" of these compounds. EPA conducted a detailed literature review and analysis to determine that any non-cellulosic components of

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<sup>4</sup> See RFS2 Summary and Analysis of Comments, 3-27

<sup>5</sup> 78 Fed. Reg. 36,045

<sup>6</sup> *Id.*

cellulosic biomass feedstocks would be de minimis and incidental in nature. We also agree with EPA's determination that cellulosic biofuel produced via the biochemical process will be almost exclusively derived from the cellulosic and hemicellulosic portions of the feedstock, while the remaining lignin and non-cellulosic compounds will be "left over." Thus, there is very little risk that renewable fuel produced from cellulosic biomass via the biochemical process will be derived from anything other than cellulose and hemicellulose.

EPA's proposal is pragmatic from both a technical and economic standpoint. As the Agency clearly acknowledges, there is "...no ready test to identify the portion of fuel produced from non-cellulosic materials."<sup>7</sup> The analytical tools and methods that would be needed by commercial biofuel facilities to precisely, economically, and quickly determine the cellulosic content of a renewable fuel do not exist today. We concur that other methods that commercial facilities could conceivably use to estimate cellulosic content on a batch basis (e.g., mass balance) would be "difficult and potentially time-consuming and expensive," with no clear regulatory benefit.

The proposal states that EPA would apply this same treatment to new and emerging cellulosic feedstock pathways (i.e., pathways that have not yet been approved) based on a case-by-case evaluation. We agree this is the proper approach; if EPA determines that a new feedstock is comprised predominantly of cellulose, hemicellulose, and lignin, 100% of the volume of renewable fuel produced from that feedstock should qualify for cellulosic biofuel RIN generation.

EPA seeks comment on two alternative approaches to RIN generation for cellulosic biomass feedstocks. While the ethanol industry strongly prefers the primary approach proposed by EPA, a second-best option would be the "Cellulosic Content Threshold Approach." If EPA were to finalize this approach, we believe 80% is a reasonable threshold that strikes a proper balance between "...emphasis on the feedstock content having a higher actual cellulosic component..." and "...emphasis on promoting the volume of fuels that could be categorized as cellulosic biofuel."<sup>8</sup> If this approach was finalized in lieu of the primary proposed approach, it should be the responsibility of EPA to determine whether feedstocks meet the threshold based on published data and analysis. In the event no published information exists on particular feedstock, EPA should solicit submissions from individual producers.

RFA is opposed to the second alternative approach, referred to as the "Specified Percentage Approach." This approach would be most costly and burdensome for producers, and presents the most opportunity for RIN generation errors.

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<sup>7</sup> 78 Fed. Reg. 36,046

<sup>8</sup> 78 Fed. Reg. 36,047

**3. Any residual non-cellulosic components, including starch, remaining bound to corn kernel fiber should be considered de minimis, and 100% of the volume of renewable fuel produced from corn kernel fiber should qualify for cellulosic biofuel RIN generation.**

EPA asks for comment on whether the definition of crop residue should be altered to "...explicitly exclude the corn starch component." RFA is opposed to amending the definition because any residual corn starch remaining bound to the cellulosic corn kernel fiber would be incidental and de minimis. Further, bound starch would be technically and economically impractical to separate from the cellulosic matrix of the fiber. The starch content of corn kernel fiber (i.e., bran coat and tip cap) is typically 5-7% (dry weight), while cellulosic fiber represents 79-87% of the mass of these kernel fractions (Figure 1). The remainder of the mass of corn kernel fiber is comprised mostly of non-fermentable proteins, oils, and ash.

**Figure 1. Typical Composition of Yellow Dent Corn**

| Composition of Component Part, Percent of Dry Basis |                |        |         |       |       |        |       |
|-----------------------------------------------------|----------------|--------|---------|-------|-------|--------|-------|
| Component                                           | Kernel Percent | Starch | Protein | Oil   | Ash   | Sugars | Fiber |
| Endosperm                                           | 82.9%          | 88.4%  | 8.0%    | 0.8%  | 0.3%  | 0.6%   | 1.9%  |
| Germ                                                | 11.0%          | 11.9%  | 18.4%   | 29.6% | 10.5% | 10.8%  | 18.8% |
| Bran Coat                                           | 5.3%           | 7.3%   | 3.7%    | 1.0%  | 0.8%  | 0.3%   | 86.9% |
| Tip Cap                                             | 0.8%           | 5.3%   | 9.1%    | 3.8%  | 1.6%  | 1.6%   | 78.6% |
| Whole Kernel                                        | 100.0%         | 75.0%  | 8.9%    | 4.0%  | 1.5%  | 1.7%   | 8.9%  |

Source: Bunge North America<sup>9</sup>

Similarly, distillers grains or whole stillage (which may be used as the feedstock for some post-fermentation corn kernel fiber conversion technologies) has been shown in the literature to contain just 4.2-6.1% starch (dry weight).<sup>10</sup> Thus, it is safe to assume that the renewable fuel produced from corn kernel fiber is predominantly derived from the cellulosic, hemicellulosic, and/or lignin components of the fiber, and that any renewable fuel produced from residual starch is de minimis. Given the analyses available in the literature, we think EPA's assertion that, in some cases, "...as much as 20% of the final fuel could be derived from corn starch..." is highly unlikely.

However, elsewhere in the proposal EPA recommends allowing cellulosic biofuel RIN generation on 100% of the volume of renewable fuel derived from qualifying cellulosic feedstocks (including "crop residue") consisting of "...approximately 80-95% cellulose, hemicellulose, or lignin."<sup>11</sup> Because EPA is not proposing—and should not propose—to amend the definition of crop residue to exclude incidental bound starch found in corn kernel

<sup>9</sup> [http://www.bungenorthamerica.com/news/pubs/03\\_bunge\\_milling\\_process\\_diagram.pdf](http://www.bungenorthamerica.com/news/pubs/03_bunge_milling_process_diagram.pdf)

<sup>10</sup> Kim, Younmi, et al. "Effect of compositional variability of distillers' grains on cellulosic ethanol production." *Bioresource technology* 101.14 (2010): 5385-5393.

<sup>11</sup> 78 Fed. Reg. 36,045

fiber, the percentage threshold applied by EPA to establish de minimis contamination levels for other cellulosic feedstocks should also apply to corn kernel fiber. That is, given that corn kernel fiber is comprised of at least 80-95% cellulose, hemicellulose, and lignin, 100% of the volume of renewable fuel produced from corn kernel fiber should be allowed to generate D3 RINs.

- a. **Though we do not believe it is necessary, EPA could consider asking producers who use corn kernel fiber to demonstrate annually via existing registration, reporting, and recordkeeping requirements that a minimum of 80% of the renewable fuel derived from corn kernel fiber comes from the cellulosic, hemicellulosic, or lignin components of the fiber.**

We are aware that some stakeholders have voiced concern about the presence of de minimis residual bound starch in corn kernel fiber and its implications for cellulosic biofuel RIN generation. While we believe these concerns are unfounded, we submit that EPA could easily monitor whether the renewable fuel produced from corn kernel fiber is in fact predominantly (i.e., more than 80%) derived from the cellulosic, hemicellulosic, and lignin components (if the Agency believed it was necessary to do so). To prove that renewable fuel production from the non-cellulosic portions of corn kernel fiber is truly de minimis, producers using corn kernel fiber could demonstrate annually via existing registration, reporting, and recordkeeping provisions that a minimum of 80% of the renewable fuel derived from corn kernel fiber comes from the cellulosic, hemicellulosic, or lignin components of the fiber.

An initial demonstration that at least 80% of the renewable fuel comes from cellulose, hemicellulose, or lignin could be made via the updated registration requirements for producers adopting new renewable fuel processes. Per §80.1450(d), a renewable fuel producer who modifies his facility to produce a new type of renewable fuel and associated D-code RIN "...must update his registration information and submit a copy of an updated independent engineering review at least 60 days prior to producing the new type of renewable fuel." Thus, if a facility that previously produced only corn starch ethanol and D6 RINs adopts a technology to convert corn kernel fiber to cellulosic ethanol (and generate D3 RINs), it must update its existing registration, including an updated third-party engineering review. Among other requirements, the updated third-party engineering review must include "...a detailed review of the renewable fuel producer's calculations used to determine  $V_{RIN}$  of a representative sample of batches of each type of renewable fuel produced since the last registration." These calculations, along with feedstock analyses, process designs, and the other information required as part of the updated independent engineering review, could serve as the initial demonstration to EPA that the renewable fuel produced from corn kernel fiber feedstock is predominantly derived from cellulosic material.

Ongoing (e.g., annual) demonstrations could potentially be made via regular RIN generation reports, per §80.1451(b)(1)(ii). Among other requirements, these reports require producers to detail, on a batch basis, the “...types and quantities of feedstocks used...” and the “...process(es) and feedstock(s) used and proportion of renewable volume attributable to each process and feedstock.” In specifying the “types and quantities of feedstocks used,” producers could certify that the corn kernel fiber feedstock is predominantly (i.e., more than 80%) cellulose, hemicellulose, and lignin. Further, annual attest engagements could also be used for verification.

In sum, numerous tools exist within the current RFS2 registration, reporting, and recordkeeping framework to verify that renewable fuel produced from corn kernel fiber is predominantly derived from the cellulosic, hemicellulosic, and lignin components of the fiber, and that any renewable fuel produced from residual starch is in fact de minimis. Moreover, in the unlikely event that buyers of D3 RINs and cellulosic ethanol from corn kernel fiber seek additional assurance about the feedstock composition or the proper generation of RINs, they may elect to participate in the pending voluntary RIN Quality Assurance Program (QAP).

**b. We strongly oppose the explicit exclusion of de minimis corn starch from the definition of crop residue. However, if EPA did pursue such an exclusion, the Agency should allow producers using corn kernel fiber to use one of two methods for RIN generation and assignment.**

Though we strongly oppose such an action, if EPA did decide for some reason to explicitly exclude de minimis corn starch from the definition of crop residue, the Agency should allow producers using corn kernel fiber to use one of two methods for RIN generation and assignment. The first allowable method would be the existing regulatory provisions governing RIN assignment for single batches of fuel derived from multiple feedstocks (§80.1426(f)(3)). This method would require individual producers to assign RINs based on specific determinations of the share of renewable fuel from corn kernel fiber that is derived from cellulose, hemicellulose, and lignin versus non-cellulosic components. The second option we propose would be less burdensome administratively; it would involve EPA setting a default cellulosic content percentage for corn kernel fiber. EPA could determine, for example, that the renewable fuel derived from corn kernel fiber comes from, on average, 94% cellulose, hemicellulose, and lignin. Thus, 94% of the volume of fuel produced from corn kernel fiber would be eligible to generate D3 RINs, while the remaining 6% would be eligible to generate D6 RINs. This approach would be similar to the “Specified Percentage Approach” discussed in V.A.4 of the proposal.

**4. The use of corn kernel fiber as a renewable fuel feedstock will not meaningfully affect livestock and poultry feed markets.**

We agree with EPA's finding that "...extracting the fiber from corn matter used to produce standard DDG would not have a significant effect on feed markets."<sup>12</sup> Removing the fiber from the corn kernel would slightly reduce the mass of the distillers grains, but the protein and fat content would be concentrated. This would make the resulting low-fiber co-product more valuable and nutritious for swine and poultry than conventional DDG. Additionally, it is common for buyers of conventional DDG to require that sellers do not exceed a maximum fiber content level. In other words, the fiber content of conventional DDG has been *too high* for certain users in some cases in the past, leading those buyers to specify fiber maximums in their contractual terms and conditions.

A detailed analysis by Dr. Jerry Shurson (Attachment 1), of the Department of Animal Science at the University of Minnesota, found that feeding low fiber distillers grains (LF-DDG) to swine and poultry "...will have minimal effects on corn and soybean meal displacement ratios, while maintaining diet inclusion rates equal to current industry levels for typical DDGS." Dr. Shurson's analysis further concluded that fiber has a negative effect on energy value of corn-co-products for swine and poultry, and thus its partial removal has a positive effect on feeding value. Using LF-DDG in swine and poultry diets "...does not materially change the demand for corn and soybean meal relative to a case where conventional DDGS are fed (in fact, demand for soybean meal is slightly reduced)."

Similar results are found elsewhere in the scientific literature. Animal scientists from the University of Illinois-Champaign/Urbana determined that LF-DDG "...have increased nutritional value for poultry."<sup>13</sup> Likewise, scientists at Mississippi State University found that, "Fiber separation from DDGS increases its nutritional value for poultry and swine diets."<sup>14</sup>

EPA's proposal contemplates a hypothetical scenario in which LF-DDG saturates the swine and poultry feed market and "spill[s] over into dairy and cattle feed markets." We think such a scenario is highly unlikely given that there is substantial room for LF-DDG growth in the swine and poultry markets. We agree with EPA's finding that demand for conventional DDG in the cattle and dairy sectors would create sufficient incentive to ensure that adequate supplies of conventional DDG remain available.

**5. Producers of renewable fuels from feedstocks containing lower cellulosic content (i.e., less than 80%) could use 80.1426(f)(3) to properly generate and assign RINs. Alternatively, EPA could adopt a "bucket" approach that would involve less administrative burden for both producers and the Agency.**

EPA seeks comment on RIN generation for renewable fuels from feedstocks that contain lower cellulosic content than the feedstocks discussed in the proposal. Current regulations

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<sup>12</sup> 78 Fed. Reg. 36,057

<sup>13</sup> <http://ps.fass.org/content/89/1/44.full.pdf+html>

<sup>14</sup> [http://www.abe.msstate.edu/~radha/EnhancedCorn\\_For\\_Broilers.pdf](http://www.abe.msstate.edu/~radha/EnhancedCorn_For_Broilers.pdf)

already provide a method for assigning RINs to single batches that are comprised of a mixture of fuel types with different applicable D codes. RFA believes those provisions are appropriate for renewable fuels from feedstocks containing less than 80% cellulose, hemicellulose, or lignin. Alternatively, EPA could establish a “bucket” approach in which feedstocks that fit within a particular *range* of cellulose, hemicellulose, and lignin content would be assumed to have a *specific* cellulosic content for the purposes of RIN generation.

**6. EPA’s proposal to amend the definition of “crop residue” based on potential feedstock demand changes is arbitrary and unnecessary, and potentially restricts the usage of crop residues for biofuel production. RFA is opposed to the proposed amendment.**

EPA proposes to amend the definition of “crop residue” by adding a second sentence to the existing definition: “Biomass is considered crop residue only if the use of that biomass for the production of renewable fuel has no significant impact on demand for the feedstock crop, products produced from that feedstock crop, and all substitutes for the crop and its products, nor any other impact that would result in a significant increase in direct or indirect GHG emissions.”<sup>15</sup>

It is an economic reality that increased use of a particular crop residue for biofuel production may result in higher value for the residue and may impact the overall value of the crop. Farmers base their planting decisions on potential net revenue per acre; thus, while the value of a crop residue may not be the primary reason the crop was planted, the residue’s contribution to potential net revenue per acre could weigh in the farmer’s cropland allocation decisions. Accordingly, the emergence of a market for a particular crop residue as a biofuel feedstock could positively impact prospective revenue per acre and impact planting decisions and cropland allocation. *However, just because the value of a crop residue may have some influence on planting decisions does not mean the biofuel produced from that crop residue should be arbitrarily ruled out as qualifying for cellulosic biofuel RIN generation.* That is, fuel from the crop residue may still easily surpass the 60% GHG reduction threshold necessary for D3 RIN generation even when market responses and “additional direct or indirect GHG emissions” are considered. As such, EPA’s proposed language unnecessarily restricts the potential usage of crop residues for biofuel production.

Further, the current regulations already include key criteria for determining the RIN eligibility of various feedstocks and biofuels. That is, feedstocks must meet the definition of “renewable biomass” and the biofuels produced from those feedstocks must reduce GHG emissions by specified amounts. EPA has already correctly determined that “crop residues” meet the 60% GHG threshold. We see no reason why EPA couldn’t continue to evaluate whether specific new crop residues satisfy these requirements on a case-by-case basis (as

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<sup>15</sup> 78 Fed. Reg. 36,056



the Agency did with corn kernel fiber). Once EPA determines that a particular crop residue satisfies these requirements, it could add the feedstock to a table of approved crop residues (e.g., similar to Table IV.D.-1 of the proposal). Case-by-case evaluations obviate the need for amending the definition of “crop residue.”

**7. RFA supports EPA’s proposal to provide an alternative approach to applying RVP standard to a commingled mixture of E10 with approved gasoline additives, including butanol. However, the conditions for applying the alternative approach should be limited to whether blending an approved gasoline additive with E10 results in no net increase in RVP.**

EPA seeks comment on a potential alternative approach to applying RVP standards to commingled mixtures of E10 with approved fuels and fuel additives, such as 12%vol. butanol blends. The Agency suggests it could treat commingled mixtures of E10 and approved gasoline additives as being compliant with the RVP standard as long as there is no overall degradation of RVP and air quality impacts compared to what would occur if the separate components had not been blended. In other words, E10 with RVP of 10 psi could be blended with an approved gasoline additive with RVP of 9 psi, and EPA would treat the commingled blend as being compliant with RVP standards. EPA suggests this alternative could apply only if the commingled blend’s RVP is no higher than the “weighted average” RVP of the separate components.

We support the spirit and intent of the alternative approach to compliance with RVP standards and believe EPA’s rationale is generally sound. However, we believe the condition requiring the RVP of the commingled blend to be no higher than the weighted average RVP of the separate components is unnecessary and would lead to confusion in the marketplace. Due to the nonlinear nature of RVP for some fuels and additives, it is unlikely that blenders and retailers could readily determine whether a certain commingled blend’s RVP is equal to, or less than, the weighted average RVP of the individual components. RFA believes the conditions for applying the proposed alternative approach to RVP compliance should be limited to whether blending an approved gasoline additive with E10 results in no net increase in RVP (i.e., no increase beyond 10 psi). We further concur that EPA has the authority to regulate RVP in this manner, and we encourage EPA to pursue changes to the applicable regulations to facilitate the proposed RVP treatment.

Finally, RFA questions whether it is reasonable to specify that only the retailer has an obligation to show that the specified conditions of the alternative approach have been satisfied. We can see potential scenarios where RVP-compliant E10 could be blended with an RVP-compliant approved gasoline additive upstream of the retailer. As such, EPA should consider simply specifying that the *entity responsible for blending* E10 with the approved gasoline additive would be responsible for demonstrating the specified conditions are met.

**8. RFA supports the proposed revision to the definition of “small refinery.”**

While we believe the small refinery exemption has outlived its useful life, we agree that EPA should revise the definition of “small refinery” to ensure exemptions from RFS2 obligations are granted only to truly small facilities. RFA supports EPA’s proposal to specify that a small refinery exemption may apply only to facilities with throughput of 75,000 barrels per day (bpd) or less in 2006 and all subsequent years. This ensures facilities that may have expanded since 2006, and whose capacity may now exceed the 75,000 bpd threshold, are not allowed to seek a small refinery exemption from RFS2 obligations.

**9. EPA’s current threshold for defining “small blenders of renewable fuels” is far too low and should be raised to better reflect marketplace realities.**

EPA states that it has received feedback from a number of parties who believe the current “small blender” threshold of 125,000 gallons is far too low. RFA agrees with these parties. Discussions with renewable fuel producers and blenders have revealed that even the smallest renewable fuel blenders in the commercial marketplace typically handle several million gallons of renewable fuel per year. Based on conversations with industry, we believe a threshold in the range of 3-5 million gallons per year would be far more reasonable.

**10. RFA supports the proposed changes to §80.1452 establishing an alternative reporting method for RIN buy and sell transactions. However, we believe EPA should clarify certain aspects of the proposed regulatory language.**

We strongly support the proposed addition of an alternative reporting method for RIN buy and sell transactions, as outlined in §80.1452. RFA believes many counterparties transacting RINs will utilize this alternative method, as it works most effectively with their existing formats for commercial documents and tracking systems. However, as currently written, it appears the alternative method would only be available for transfers of renewable fuel with assigned RINs. We believe the alternative reporting method should also be allowed in cases where renewable fuel is transferred with an appropriate number of separated RINs. We encourage EPA to revise the language in §80.1452 to include separated RINs that are transferring with a corresponding volume of renewable fuel.

Further, we believe EPA should clarify if it intends to allow transactions entered via the alternative reporting method to be available in EMTS beyond the current 10-day transaction window. We believe a 15- or 20-day window may be most appropriate for these transactions. Further, we request that EPA consider allowing the buyer to accept pending sales transactions in EMTS based on shipment date and post-enter the date of the receipt of the fuel after RINs have been accepted. The intent of these recommendations is to prevent the expiration of perfectly valid transactions due simply to a time delay in shipping and receipt-of-fuel events.

**11. To enhance transparency in the RIN market, EPA should consider disclosing company-level RVOs, information on RIN separations, the reason for**

**separations, RIN retirements, the reason for retirements, and information on the volume of RIN transactions by non-obligated parties who are not renewable fuel producers.**

RFA believes EPA could use this rulemaking to improve transparency around 1) the obligated parties' use of RINs, and 2) participation in the RIN market by non-obligated third parties who are not renewable fuel producers. We believe EPA should provide to the public information on annual company-level renewable volume obligations (RVOs), monthly data on company-level RIN separations and RIN retirements, and monthly disclosure of RIN transactions by non-obligated third parties who are not renewable fuel producers. This information could be shared via EPA's existing EMTS data web site.

**12. We support the proposed changes to §80.1466, which would oblige foreign renewable fuel producers and foreign ethanol producers to meet the same regulatory requirements as foreign RIN generators.**

RFA supports the proposed changes to §80.1466. While we believe the RIN system has worked effectively and efficiently to date, we agree that the amendments would strengthen the long-term fidelity of the program. The changes would improve EPA's oversight on renewable fuels produced outside of the U.S. that are ultimately used for RFS2 compliance. Under the registration, reporting, recordkeeping, and enforcement provisions of the current regulations, EPA has the ability to tightly monitor and oversee the activities of domestic renewable fuel facilities. However, EPA does not currently enjoy the same level of access to, and oversight on, foreign renewable fuel facilities. While the Agency has the resources and authority to verify operations at domestic renewable fuel facilities, it states in the proposal that monitoring of feedstock use and processing practices is a "...particular challenge for fuel produced at foreign facilities."

We agree that the proposed amendments would allow EPA to gain a level of oversight on foreign renewable fuel producers that is more consistent with the current level of oversight on domestic renewable fuel producers and obligated parties. In other words, the proposed revisions would level the playing field in terms of regulatory oversight, and provide greater assurance that foreign-produced fuels are meeting all pertinent regulatory requirements. It should be noted that the provisions that EPA proposes to apply to foreign renewable fuel producers are *already applicable to foreign RIN generators*. The fact that foreign RIN generators are already complying with these provisions is proof that foreign entities can reasonably adopt the proposed requirements. Further, we support the proposal to prohibit importers from generating RINs for fuel imported from a foreign producer until the foreign fuel producer has satisfied the requirements of §80.1466.

**13. RFA supports the proposed revisions allowing a facility to use its "nameplate capacity" to establish its baseline volume for the purposes of registration.**

RFA supports the proposed amendment allowing facilities to use "nameplate capacity" to establish baseline volumes. We agree that "nameplate capacity" should only be used to determine baseline volume in instances where an applicable permit does not exist, operations have not started (or there is less than one year of production records), and an exemption from the 20% GHG requirement is not being claimed.

\* \* \* \* \*

Thank you again for the opportunity to comment. If you have any questions regarding our comments, please contact Geoff Cooper at [gcooper@ethanolrfa.org](mailto:gcooper@ethanolrfa.org) or 636.594.2284. We look forward to working with EPA to ensure the continued success of the RFS2 program.

Sincerely,

A handwritten signature in black ink, appearing to read "Bob Dinneen", with a stylized flourish extending to the right.

Bob Dinneen  
President & CEO

# **Attachment 1**

**Impact of fiber removal from corn dried distillers grains with  
solubles (DDGS) on co-product feeding value and  
displacement ratios**

**Dr. Jerry Shurson**

**Department of Animal Science  
University of Minnesota**

**December 1, 2011**

# **Impact of fiber removal from corn dried distillers grains with solubles (DDGS) on co-product feeding value and displacement ratios**

**Dr. Jerry Shurson  
Department of Animal Science  
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## **Executive Summary**

New ethanol and distillers grains production technologies affect the nutritional composition and feeding value of corn co-products to livestock and poultry. Traditional dried distillers grains with solubles (DDGS) has been widely accepted and used at relatively high dietary inclusion rates in the U.S. feed and animal industries, which has resulted in distillers grains diets becoming the “new” standard in animal feeds. Most recently, there is interest in understanding the impact of fiber and/or oil removal from DDGS in various animal feeds on corn and soybean meal usage with implications for estimating the potential impact of these co-products on Indirect Land Use Change.

At least four factors must be used to determine corn co-product displacement ratios. These include expected co-product use by species (dairy, beef, swine, and poultry) as a percentage of total production, actual co-product dietary inclusion rates for each animal species, any changes in feed conversion when corn co-products are fed, and substitution rates of corn co-products for various competing ingredients. Currently, the U.S. Environmental Protection Agency (EPA) expectations of co-product composition in 2022 are unclear. The EPA has not published any theoretical nutrient profiles or any nutritional details for corn co-products they expect to be on the market in 2022. Furthermore, there are no published data on nutrient digestibility and recommended maximum dietary inclusion levels of these new co-products for livestock and poultry. Therefore, it is impossible to predict the percentage of market share of each co-product, diet inclusion rates, and potential changes in feed conversion of the co-products evaluated in this analysis in the year 2022. Any assumptions made to do so are only speculation and can significantly bias the displacement ratios for corn, soybean meal, forages, and other ingredients. Therefore, the purpose of this report is to provide a realistic

comparison of the expected diet inclusion rates and changes in the amounts of feed ingredients replaced or added to achieve optimal animal performance when low fiber (LF)-DDGS and low fiber and oil (LFO)-DDGS are added to animal diets.

Corn co-products are added to animal feeds primarily as an energy source, and secondarily as a protein (amino acid) and available phosphorus source. The results shown in this report indicate that adding LF-DDGS and LFO-DDGS to swine and poultry diets will have minimal effects on corn and soybean meal displacement ratios, while maintaining diet inclusion rates equal to current industry levels for typical DDGS. Fiber has a negative effect on energy value of corn-co-products for swine and poultry, thus its partial removal has a positive effect on feeding value. In other words, using LF-DDGS and LFO-DDGS in swine and poultry diets does not materially change the demand for corn and soybean meal relative to a case where conventional DDGS are fed (in fact, demand for soybean meal is slightly reduced). In contrast, very limited amounts of LF and LFO-DDGS, if any, would be used in dairy and beef cattle diets because the significant reduction in fiber dramatically reduces their energy value, and removing both fiber and substantial amounts of oil further reduces their feeding value for ruminants. Furthermore, LF-DDGS and LFO-DDGS contain relatively high levels of sulfur resulting in an additional constraint on their use in significant quantities in ruminant feeds.

As the U.S. ethanol industry continues to produce more diverse corn co-products, their ultimate value and use will be based on their concentration of metabolizable and net energy, digestible protein (amino acids), and available phosphorus will determine diet inclusion rates for each animal species. Animal species that can obtain the greatest value from any corn co-product will become the predominant users of a given co-product, whereas those species that can obtain little value or benefit from the nutritional composition of a co-product will be fed limited amounts, if any, and nutritionists will seek other co-products that provide greater value for those feeding applications. For this reason, the risk of assigning specific market shares and expected diet inclusion rates by species to predict their availability and use in 2022 is high if the goal is to realistically estimate their impacts on Indirect Land Use Change. However, it is reasonable to expect that if significant quantities of LF-DDGS and LFO-DDGS are produced in the U.S. ethanol industry in the future, they will be used predominantly in swine and poultry

diets to achieve their highest value in the marketplace, and as a result, will have minimal effects on corn and soybean meal displacement and Indirect Land Use Change.

## **Introduction**

The purpose of this report is to provide the Renewable Fuels Association (RFA) an independent, scientific evaluation of the corn, soybean meal, and other feed ingredient displacement in animal feeds for new distillers co-products produced by using new ethanol production processes. Specifically, the focus of this evaluation is to compare the feeding value of corn co-products that contain low fiber (LF-DDGS) and low fiber and oil (LFO-DDGS) with “typical” DDGS (DDGS), high protein distillers grains (HP-DDG) produced from front-end fractionation, and de-oiled DDGS (DO-DDGS) produced from back-end oil extraction. By understanding diet composition changes in animal feeds, the increase or decrease in the amount of corn and soybean meal required in animal diets when various corn co-products are added at “typical” diet inclusion rates can be used to estimate the potential impact of corn co-products on Indirect Land Use Change.

Currently, the U.S. Environmental Protection Agency (EPA) expectations of co-product nutrient composition in 2022 are unclear. No theoretical nutrient profiles nor any nutritional details for corn co-products that the EPA expects to be on the market in 2022 have been published. EPA assumes that 70% of dry-grind ethanol plants will be using corn oil extraction technology and averaging 1.33 lbs. corn oil per bushel processed. Since corn contains approximately 3.9% oil (2.18 lbs per bushel), the expected oil content of de-oiled DDGS in EPA’s scenario would be approximately 2.5 to 3.0%. In reality, most current corn oil extraction technologies are removing 0.4-0.6 lbs. of corn oil per bushel processed, according to RFA. Furthermore, EPA assumes that 20% of dry grind ethanol plants will be using front-end fractionation in 2022. Although the current use of front-end fractionation technology is minimal in the U.S. ethanol industry, the primary co-product produced from this technology is HP-DDG. Therefore, this report describes estimated displacement ratios of new reduced fiber corn co-products (LF-DDGS and LFO-DDGS) relative to “typical” DDGS (10-11% corn oil, 26-28% crude protein), HP-DDG, and DO-DDGS in livestock and poultry feeds, based upon limited, if



any, scientific information available on the feeding value or maximum diet inclusion rates of these new corn co-products. Again, it is important to recognize that a direct comparison of these low fiber co-products to the co-products assumed by EPA in 2022 cannot be conducted because EPA does not provide theoretical nutritional information for the co-products in its modeling scenarios.

### **Understanding the energy value of nutritional components of corn co-products for different animal species**

“Typical” DDGS is considered and used primarily as an energy ingredient in animal feeds, but also provides significant amounts of digestible protein and amino acids and digestible phosphorus. For purposes of this evaluation, the baseline diets for all species include current industry standards for diet inclusion rates of DDGS. The contribution of various nutrient components to the total energy value of a corn co-product varies significantly by animal species. Most of the energy value of corn co-products is derived from crude fat (ether extract), which contains approximately 2.25 times more energy per unit than starch. However, the fat content in DDGS can vary from 3 to 12% depending on the extent of fat extraction used in ethanol production processes. Starch also contributes to the energy value of corn co-products, but the starch content in DDGS is relatively low (2 to 8%), and it is believed that a portion of the residual starch is “resistant starch”, which is indigestible to the animal. “Typical” DDGS also contains a significant amount of fiber. The classic definition of fiber is “the carbohydrate fractions that are not easily hydrolyzed to simple sugars in the digestive systems of mammalian species”. Fiber is measured using a variety of chemical procedures including crude fiber, neutral detergent fiber, acid detergent fiber, non-starch polysaccharides, total dietary fiber (insoluble and soluble fiber). Depending on the fiber analysis method chosen, various carbohydrate fractions are represented or excluded in each measurement as shown in **Figure 1.2**.

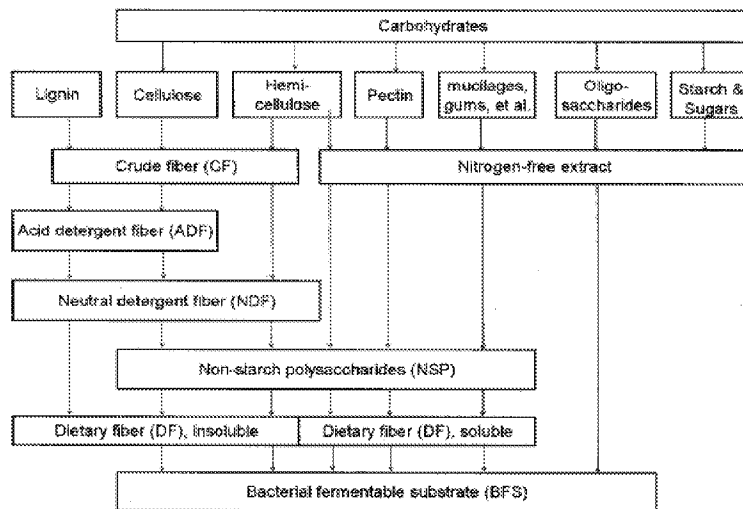


Figure 1.2. Classification of the carbohydrates (adapted from Bakker et al. (1998))

The amount and type of specific carbohydrate fractions represented in fiber influences the energy value of fiber. This level of detail is not considered in this evaluation. In general, fiber is utilized as a significant energy source in ruminants (dairy and beef cattle), whereas it has substantially less energy value for non-ruminants (swine and poultry). However, recent studies in swine have shown that fiber in DDGS can be moderately digested, but digestibility is quite variable. Swine utilize fiber more effectively as an energy source than poultry. Therefore, fiber removal from DDGS will have a significant negative impact on energy value for ruminants, but have a positive impact on energy value for swine and poultry. In addition, ruminants require a minimum level of fiber in their diets in order to maintain proper rumen function.

Along with crude fat and carbohydrates (starch and fiber), crude protein in excess of the animal's requirement can also contribute to the energy value to a feed ingredient, but the concentration of ash (minerals) reduces the energy value of co-products. Therefore, theoretically, if only fiber is removed from DDGS, the concentration of all other nutrient fractions should be increased and the energy value would decrease for ruminants, but increase for non-ruminants. An increase in the energy density of a feed ingredient results in less quantity required to provide a given level of calories to an animal.

All feed ingredients are nothing more than “packages” of nutrients in various proportions and chemical forms. All feed ingredients have some value in livestock and poultry feeds, but the value can vary substantially by species (due to differences in the ability of

digestive systems to utilize the various forms of nutrients), the relative proportions of energy and essential nutrients relative to the animal's daily requirements, and the diet formulation method used. As the composition of distillers co-products change, due to the implementation of new processing technologies in the ethanol industry, there will be more diversity in their nutrient composition, and their use and value will vary by species. In other words, some co-products will have very little value in diets for some species, whereas in other species, they will have considerable value. As new distiller's co-products enter the feed ingredient market, they will be valued relative to their contributions or displacement ratios for competing ingredients contributing significant amounts of energy, protein and amino acids, and phosphorus (the 3 most expensive components of animal feeds).

### **Nutrient Composition Comparison of Corn Distiller's Co-products**

The nutrient composition of "typical" DDGS, DO-DDGS, and HP-DDG were obtained from recent studies (Anderson et al., 2011; Rochelle et al., 2011) that determined their actual energy values for swine and poultry. Average nutrient composition from 6 DDGS sources produced from ethanol plants using different processing technologies, 3 HP-DDG sources, and 1 DO-DDGS source are shown in **Table 1** (Anderson et al., 2011). Nutrient composition of LF-DDGS and LFO-DDGS co-products was obtained from Quad County Corn Processors, a corn ethanol facility. No *in vivo* determinations of energy content of LF-DDGS and LFO-DDGS co-products have been published, and as a result, calculated estimates are used. For beef feedlot cattle, TDN was estimated to be 105%, 101%, 112%, 81%, and 78% for DDGS, DO-DDGS, HP-DDG, LF-DDGS, and LFO-DDGS, respectively. Similarly, using "typical" DDGS, DO-DDGS, and HP-DDG as references, ME content for swine was estimated to be 3,411, 3,285, 3,631, 3,631, and 3,411 kcal/kg (as-fed) for DDGS, DO-DDGS, HP-DDG, LF-DDGS, and LFO-DDGS respectively. Equations published by Rochelle et al. (2010) were used to estimate AME content of LF-DDGS and LFO-DDGS. The high sulfur content of LF-DDGS and LFO-DDGS is a concern in ruminant diets due to the potential for significant contributions to high total diet S concentrations which can lead to polioencephalomalacia (PEM).

**Table 1. Analyzed nutrient composition and calculated TDN of selected corn co-products (DM basis).**

| Item                               | DDGS  | DO-DDGS | HP-DDG | LF-DDGS | LFO-DDGS |
|------------------------------------|-------|---------|--------|---------|----------|
| Moisture                           | 10.87 | 12.64   | 8.85   | 10.72   | 11.10    |
| GE, kcal/kg                        | 5,420 | 5,076   | 5,532  | ND      | ND       |
| Swine ME, kcal/kg                  | 3,790 | 3,650   | 4,035  | ND      | ND       |
| Poultry AME <sub>N</sub> , kcal/kg | 2,781 | 2,146   | 2,820  | ND      | ND       |
| TDN, %                             | 105   | 101     | 112    | 81      | 78       |
| Crude protein                      | 31.25 | 34.74   | 47.09  | 47.60   | 50.50    |
| Arginine                           | 1.22  | 1.44    | 1.86   | 1.64    | 1.71     |
| Cysteine                           | 0.59  | 0.61    | 0.89   | 0.85    | 0.83     |
| Histidine                          | 0.86  | 0.89    | 1.20   | 0.97    | 0.99     |
| Isoleucine                         | 1.17  | 1.25    | 1.91   | 1.23    | 1.37     |
| Leucine                            | 3.69  | 4.12    | 6.69   | 3.23    | 3.50     |
| Lysine                             | 1.17  | 1.00    | 1.37   | 1.36    | 1.32     |
| Methionine                         | 0.60  | 0.64    | 1.06   | 0.90    | 0.91     |
| Phenylalanine                      | 1.45  | 1.51    | 2.49   | 1.75    | 1.75     |
| Threonine                          | 1.17  | 1.26    | 1.69   | 1.32    | 1.33     |
| Tryptophan                         | 0.21  | 0.18    | 0.21   | 0.24    | 0.27     |
| Valine                             | 1.64  | 1.76    | 2.41   | 1.62    | 1.77     |
| Starch                             | 4.28  | 3.04    | 4.30   | ND      | ND       |
| Crude fiber                        | 7.77  | 8.69    | 8.48   | 5.60    | 1.73     |
| Total dietary fiber                | 36.94 | 37.20   | 32.28  | ND      | ND       |
| NDF                                | 40.37 | 50.96   | 42.20  | 13.70   | 4.62     |
| ADF                                | 12.11 | 15.82   | 17.71  | 9.78    | 3.30     |
| Cellulose                          | 11.00 | 12.72   | 16.28  | ND      | ND       |
| Lignin                             | 1.68  | 3.49    | 1.93   | ND      | ND       |
| Crude fat                          | 11.38 | 3.15    | 4.65   | 6.41    | 2.60     |
| Ash                                | 4.51  | 5.16    | 1.75   | 5.64    | 6.10     |
| Calcium , mg/kg                    | 343   | 652     | 122    | 300     | 300      |
| Phosphorus, mg/kg                  | 8,234 | 8,373   | 3,900  | 11,000  | 11,300   |
| Sodium, mg/kg                      | 1,536 | 3,776   | 685    | 1,000   | 2,100    |
| Sulfur, mg/kg                      | 8,231 | 9,772   | 7,738  | 18,300  | 25,900   |

## **Estimated Displacement Ratios of New Fractionated Corn Co-products and Their Relative Value in Livestock and Poultry Diets**

At least four factors must be used to determine corn co-product displacement ratios. These include percentage of market share for each co-product by species (dairy, beef, swine, and poultry), actual dietary inclusion rates by species, any changes in feed conversion when corn co-products are fed, and substitution rates of corn co-products for various competing ingredients. It is impossible to predict the percentage of market share of each co-product, diet inclusion rates, and potential changes in feed conversion of the co-products evaluated in this analysis in the year 2022 due to limited data available. Any assumptions made to do so are only speculation and can significantly bias the displacement ratios for corn, soybean meal, forages, and other ingredients. Back-end fiber and oil removal processes are new and emerging technologies in fuel ethanol production, but there are no published scientific data on energy and nutrient composition and digestibility, or recommended maximum dietary inclusion levels for livestock and poultry. Therefore, the purpose of this report is to provide a realistic comparison of the expected diet inclusion rates and changes in the amounts of feed ingredients replaced or added to achieve optimal animal performance when LF-DDGS and LFO-DDGS are added to animal diets. In order to conservatively estimate these displacement ratios, it is assumed that no improvements or decreases in animal performance would be realized by feeding diets containing each of these co-products. However, in previous analysis conducted by this author, there are distinct feed conversion advantages for feeding wet and dried distillers grains with solubles for dairy and beef cattle compared to feeding high moisture corn or dry-rolled corn diets. These advantages were not considered in this analysis for DO-DDGS, HP-DDG, LF-DDGS, and LFO-DDGS because there are no published data.

Acceptance and high market penetration of DDGS in livestock and poultry feeds is widespread in the U.S., and DDGS use in commercial livestock and poultry feeds has become the new “normal”. Therefore, the comparisons made in this analysis are based on reference diets containing DDGS, at current industry average diet inclusion rates for lactating dairy cows, beef feedlot cattle, growing swine, and broilers. I believe that using DDGS diets, compared to more historic diets based on only corn and soybean meal, provides a more realistic comparison

of the real impact of new corn co-products on ingredient displacement ratios. Again, a direct comparison to the EPA “baseline” mix of co-products, which by 2022 consists mostly of DO-DDGS with extremely high levels of oil removal and DDGS from fractionation, was not possible because hypothetical nutritional information for these products is not available from EPA. Diets and ingredients used in the following discussion are based on those typically fed in the Midwest, with the exception of broiler diets in the Southeastern U.S, where most of the U.S. livestock and poultry are fed.

### ***Assumptions and Displacement Ratios – Swine***

Corn-soybean meal-30% corn co-product based diets were formulated to meet the nutrient requirements of growing pigs. Diets contained high amounts of synthetic amino acids to minimize soybean meal use and excess crude protein (nitrogen), and were formulated using conservative estimates of metabolizable energy, digestible amino acids, and available phosphorus. Energy, digestible amino acids, and available phosphorus content of the diets were maintained at constant levels, and animal fat was added to the DO-DDGS diet due to its relatively low level of ME.

Adding LF-DDGS and LFO-DDGS had minimal effects on diet composition changes (**Table 2**) when including each co-product at 30% inclusion rate to reflect potential actual feeding levels in swine diets. Corn usage increased slightly (approximately 2 percentage points) while soybean meal use decreased slightly (approximately 2.25 percentage points) when LF-DDGS and LFO-DDGS were added compared to DDGS, DO-DDGS, and HP-DDG diets. Synthetic amino acid use was similar, limestone slightly increased and phytase was not needed in the LF-DDGS and LFO-DDGS diets. Calculated displacement ratios are shown in **Table 3**.

**Table 2. Composition (%) of common feed ingredients in diets for growing swine when fed DDGS, DO-DDGS, HP-DDG, LF-DDGS, and LFO-DDGS (as-fed basis).**

|                             | DDGS   | DO-DDGS | HP-DDG | LF-DDGS | LFO-DDGS |
|-----------------------------|--------|---------|--------|---------|----------|
| Corn                        | 56.58  | 54.49   | 56.87  | 57.50   | 58.61    |
| Soybean meal, 46%           | 11.35  | 12.60   | 11.30  | 10.25   | 9.10     |
| Animal fat                  | 0.00   | 0.85    | 0.00   | 0.00    | 0.00     |
| Co-product                  | 30.00  | 30.00   | 30.00  | 30.00   | 30.00    |
| Limestone                   | 1.25   | 1.25    | 1.00   | 1.45    | 1.45     |
| Synthetic AA                | 0.36   | 0.35    | 0.31   | 0.35    | 0.39     |
| Phytase                     | 0.015  | 0.014   | 0.069  | 0.00    | 0.00     |
| Other minerals and vitamins | 0.45   | 0.45    | 0.45   | 0.45    | 0.45     |
| Total                       | 100.00 | 100.00  | 100.00 | 100.00  | 100.00   |

**Table 3. Diet displacement ratios of common feed ingredients in diets for growing swine when fed DDGS, DO-DDGS, HP-DDG, LF-DDGS, and LFO-DDGS (as-fed basis).**

|                                               | DO- DDGS | HP-DDG | LF-DDGS | LFO-DDGS |
|-----------------------------------------------|----------|--------|---------|----------|
| Corn displacement                             | -0.070   | 0.010  | 0.031   | 0.068    |
| Soybean meal displacement                     | 0.042    | -0.001 | -0.037  | -0.075   |
| Limestone displacement                        | 0.000    | -0.008 | 0.007   | 0.007    |
| Animal fat displacement                       | 0.028    | 0.000  | 0.000   | 0.000    |
| Synthetic amino acid and phytase displacement | -0.011   | 0.004  | -0.001  | 0.001    |

### ***Assumptions and Displacement Ratios – Poultry***

Grower broiler diets containing 8% corn co-products were used to represent the impact of LF-DDGS and LFO-DDGS on corn, soybean meal, and other ingredient displacement ratios in poultry diets. Similar results would be expected for layer and turkey diets. The feed ingredient displacements shown in **Table 4** are based on the current industry average inclusion rate for DDGS in broiler diets. Constant apparent metabolizable energy (AME), amino acids, and phosphorus were maintained in these diets. Due to variable AME content of the co-products, animal fat was added to varying amounts in order to maintain acceptable dietary energy levels.

As expected, and similar to swine diets, the addition of LF-DDGS and LFO-DDGS slightly increased corn, and slightly decreased soybean meal displacement ratios compared to DDGS, DO-DDGS, and HP-DDG (**Table 5**). The amount of poultry fat and defluorinated phosphate required in the HP-DDG, LF-DDGS and LFO-DDGS diets was slightly reduced, while the amount of limestone slightly increased compared to DDGS and DO-DDGS diets.

**Table 4. Composition (%) of common feed ingredients in diets for growing broilers when fed DDGS, DO-DDGS, HP-DDG, LF-DDGS, and LFO-DDGS (as-fed basis).**

|                             | DDGS   | DO-DDGS | HP-DDG | LF-DDGS | LFO-DDGS |
|-----------------------------|--------|---------|--------|---------|----------|
| Corn                        | 66.29  | 65.99   | 69.80  | 68.29   | 68.87    |
| Soybean meal                | 17.86  | 17.14   | 14.11  | 16.31   | 15.69    |
| Co-product                  | 8.00   | 8.00    | 8.00   | 8.00    | 8.00     |
| Poultry fat                 | 1.26   | 2.19    | 0.75   | 0.78    | 0.81     |
| Poultry by-product meal     | 4.00   | 4.00    | 4.00   | 4.00    | 4.00     |
| Defluorinated phos.         | 0.15   | 0.16    | 0.33   | 0.07    | 0.06     |
| Limestone                   | 1.06   | 1.06    | 1.54   | 1.14    | 1.15     |
| Other minerals and vitamins | 0.87   | 0.91    | 0.87   | 0.90    | 0.87     |
| Synthetic AA                | 0.48   | 0.55    | 0.57   | 0.49    | 0.53     |
| Phytase                     | 0.02   | 0.02    | 0.02   | 0.02    | 0.02     |
| Total                       | 100.00 | 100.00  | 100.00 | 100.00  | 100.00   |

**Table 5. Diet displacement ratios of common feed ingredients in diets for growing broilers when fed DDGS, DO-DDGS, HP-DDG, LF-DDGS, and LFO-DDGS (as-fed basis).**

|                                    | DO-DDGS | HP-DDG | LF-DDGS | LFO-DDGS |
|------------------------------------|---------|--------|---------|----------|
| Corn displacement                  | -0.038  | 0.439  | 0.250   | 0.323    |
| Soybean meal displacement          | -0.090  | -0.469 | -0.194  | -0.271   |
| Poultry fat                        | 0.116   | -0.064 | -0.060  | -0.056   |
| Defluorinated phos. displacement   | 0.001   | 0.023  | -0.010  | -0.011   |
| Limestone                          | 0.000   | 0.060  | 0.010   | 0.011    |
| Synthetic amino acids displacement | 0.009   | 0.011  | 0.001   | 0.006    |

#### ***Assumptions and Displacement Ratios - Dairy cattle***

Diets were formulated for a 1400 lb mid-lactation dairy cow producing 80 lbs milk/day and consuming 50 lbs dry matter intake/day. A typical Midwestern lactating dairy cow diet consisting of alfalfa hay, corn silage, corn grain, “typical” DDGS (10%), beef tallow, soybean



meal, dicalcium phosphate, calcium carbonate, along with other minerals and vitamins was used as the baseline in the comparison. An attempt was made to keep the level of all corn-co-products at a constant 10% inclusion rate in all diets. However, because of the reduced fiber content in LF-DDGS and LFO-DDGS, the nutrient profiles of the combination of ingredients used in this evaluation, along with diet nutrient constraints, the amount of these low fiber co-products included was significantly lower (2.7 and 2.1% for LF-DDGS and LFO-DDGS diets, respectively) compared to DDGS, DO-DDGS, and HP-DDG diets. Furthermore, because of the low fiber content of LF-DDGS and LFO-DDGS, some additional fiber (e.g. addition of 3.6% wheat straw as an inexpensive fiber source) was added to meet minimum NDF levels in these diets. Although wheat straw was selected in this diet comparison, several other fiber sources could also be used to meet minimum fiber requirements such as corn stalks, beet pulp, citrus pulp, etc. depending on fiber level, cost, and local availability.

The key point here is that due to the low fiber content of LF-DDGS and LFO-DDGS, there is limited feeding value of these low fiber corn co-products in lactating dairy cow rations and as a result, they would not be used in significant amounts in this market sector. Therefore, it seems reasonable to not consider displacement ratios for corn and soybean meal when forcing these co-products into the lactating dairy cattle rations relative to potential Indirect Land Use Change calculations.

#### ***Assumptions and Displacement Ratios - Beef feedlot cattle***

Two types of grain mixes are typically used for beef feedlot cattle. Beef producers in the Northern Plains states typically feed a high moisture corn and dry rolled corn mix, whereas producers in the Great Plains states feed a steam flaked corn diet. These differences will slightly affect displacement ratios. For purposes of keeping these calculations as simple as possible, I chose to formulate diets comprised of high moisture corn, corn co-product, hay, urea, and mineral supplements. Urea is commonly used as a nitrogen source in beef feedlot diets instead of soybean meal and as a result, adding any of the co-products in this evaluation have no impact on soybean meal displacement.

Similar to that observed for dairy diets, and based on the combination of ingredients and nutrient constraints used in this evaluation, the amount of low fiber co-products added in the diet formulations was significantly lower (4.2 and 3.9% for LF-DDGS and LFO-DDGS diets, respectively) compared to DDGS (34.4%), DO-DDGS (29.1%), and HP-DDG (37.0%) diets. The low fiber content of LF-DDGS and LFO-DDGS significantly reduced the feeding value of these low fiber corn co-products in beef feedlot rations and as a result, they would not be used in significant amounts in this market sector. Therefore, it seems reasonable to not consider displacement ratios for corn and soybean meal when forcing these co-products into the beef feedlot rations relative to potential Indirect Land Use Change calculations.

## **Conclusions**

The diet inclusion rates of LF-DDGS and LFO-DDGS are low in dairy and beef rations relative to diets containing DDGS, DO-DDGS, and HP-DDG because of significantly reduced energy value due to removing a high proportion of fiber and oil in these co-products. However, the favorable metabolizable energy value of LF-DDGS and LFO-DDGS allowed them to be included at the same diet inclusion rates as DDGS, DO-DDGS, and HP-DDG in swine and broiler diets, with minimal effects on corn and soybean meal displacement. Therefore, LF-DDGS and LFO-DDGS will likely be used only in swine and poultry diets because of their significantly higher feeding value compared with their low value in dairy and beef diets. When estimating the potential impact of low fiber DDGS on Indirect Land Use Change, only displacement ratios of these co-products in swine and poultry sectors should be used.

## **Acknowledgements**

Technical assistance in nutritional value assessment and diet formulations was provided by:

|         |                                                       |
|---------|-------------------------------------------------------|
| Dairy   | Dr. Mary Raeth-Knight, University of Minnesota        |
| Beef    | Dr. Alfredo DiCostanzo, University of Minnesota       |
| Swine   | Mr. John Goihl, Agri-Nutrition Services, Shakopee, MN |
| Poultry | Dr. William Dozier III, Auburn University             |

## References

Anderson, P.V., B. J. Kerr, T. E. Weber, C. Z. Ziemer, and G. C. Shurson. 2010. Determination and prediction of energy from chemical analysis of corn co-products fed to finishing pigs. *J. Anim. Sci.* (in press)

Rochelle, S.J., B.J. Kerr, and W.A. Dozier III. 2011. Energy determination of corn co-products fed to broiler chicks from 15 to 24 days of age, and use of composition analysis to predict nitrogen-corrected apparent metabolizable energy. *Poultry Science* 90:1999-2007.

**Congress of the United States**  
**House of Representatives**  
**Washington, DC 20515-2003**  
[www.sarbanes.house.gov](http://www.sarbanes.house.gov)

May 16, 2018

The Honorable Scott Pruitt  
Administrator  
U.S. Environmental Protection Agency  
1200 Pennsylvania Avenue NW  
Washington, D.C. 20460

Dear Administrator Pruitt:

I write to request additional information regarding the issuance of an exemption from renewable fuel blending obligation under the renewable fuel standard (RFS) program to Mr. Icahn's company, CVR Refining, and the political review of Freedom of Information Act (FOIA) requests. I questioned you on these issues when you appeared before the Committee on Energy and Commerce at the hearing on April 26, but further information is needed in light of your incomplete answers and troubling new developments.

In your testimony before the Subcommittee, you stated that you were "unsure" about whether CVR Refining applied for or received a waiver under the small refinery exemption of the RFS program.<sup>1</sup> Your stated lack of knowledge on this issue is troubling given the recent widespread criticism of RFS program waivers<sup>2</sup>, and surprising given Mr. Icahn's ownership of a majority position in CVR.

On April 26, the same day you testified before the Subcommittee, CVR Refining issued a News Release informing investors of first quarter 2018 results which included higher profits that CEO David Lamp attributed in part to: "...a reduction to our estimated Renewable Volume Obligation and lower Renewable Identification Number prices."<sup>3</sup> Four days later reports<sup>4</sup> indicated that CVR Refining's Wynnewood, Oklahoma refinery did, in fact, receive a waiver.

While CVR's Wynnewood facility falls within the 75,000 barrels processed per day limit of the small refinery exemption program, it is not the sole CVR Refining facility, a company with a total

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<sup>1</sup> House Committee on Energy and Commerce, *Hearing on the Fiscal Year 2019 Environmental Protection Agency Budget*, 115th Cong. (Apr. 26, 2017).

<sup>2</sup> Letter from 13 Senators to Administrator Scott Pruitt on the small refinery exemptions from the Renewable Fuel Standard program's blending requirements (Apr. 12, 2018) ([www.grassley.senate.gov/sites/default/files/Pruitt%20Small%20Refinery%20Letter%204.12.18.pdf](http://www.grassley.senate.gov/sites/default/files/Pruitt%20Small%20Refinery%20Letter%204.12.18.pdf)).

<sup>3</sup> CVR Refining, *News Release - CVR Refining Reports 2018 First Quarter Results and Announces Cash Distribution of 51 Cents* (Apr. 26, 2018) ([investors.cvrrefining.com/phoenix.zhtml?c=251539&p=irol-newsArticle&ID=2344946](http://investors.cvrrefining.com/phoenix.zhtml?c=251539&p=irol-newsArticle&ID=2344946)).

<sup>4</sup> *Exclusive: U.S. EPA grants biofuels waiver to billionaire Icahn's oil refinery - sources*, Reuters (Apr. 30, 2018) ([www.reuters.com/article/us-usa-biofuels-epa-icahn-exclusive/exclusive-u-s-epa-grants-biofuels-waiver-to-billionaire-icahns-oil-refinery-sources-idUSKBN1110YB](http://www.reuters.com/article/us-usa-biofuels-epa-icahn-exclusive/exclusive-u-s-epa-grants-biofuels-waiver-to-billionaire-icahns-oil-refinery-sources-idUSKBN1110YB)).

refining capacity that well-exceeds that of a small refinery. The small refinery exemption in the RFS program is intended to provide flexibility and relief to small-scale obligated parties that are under significant financial constraints. It was never intended to be available for large, profitable companies seeking additional opportunity for profit by evading the law.

Press reports and CVR's own reporting do not indicate the company is experiencing "disproportionate hardship." A spokesperson for EPA indicated the Agency was still following their "long-standing established process" and that the "criteria used to grant waivers has not changed since previous administrations."<sup>5</sup> However, I do not see how consistent application of criteria for granting these waivers could result in the increased numbers of waivers, the increased scrutiny of the program, or the vocal disapproval of its administration by the renewable fuels industry and the agriculture community.

Though you previously disavowed the existence of email correspondence between your staff and CVR Energy for a limited date range,<sup>6</sup> it appears EPA's review of communications with CVR failed to include telephone communications or meetings that occurred at Agency offices or at other locations. Your correspondence also failed to specify whether EPA reviewed for any communications between yourself and representatives of CVR Energy or its partner company, CVR Refining.<sup>7</sup>

I therefore request additional information regarding any communications between yourself or any other Agency personnel and representatives of CVR Energy and CVR Refining, including but not limited to any communications regarding any waiver of blending obligations under the RFS program or conditions surrounding CVR's history of RFS program compliance or use of the small refinery exemption. Specifically, please provide the following:

- 1) All communications between yourself or any other EPA personnel and CVR Energy or CVR Refining personnel or their representatives from February 17, 2017 through March 30, 2018 including email correspondence and telephone call and meeting logs, including the date and brief description of the purpose of the communication, and the name and title of EPA personnel and CVR personnel or their representative involved;
- 2) A list of each compliance year between 2011 and 2017 in which CVR Energy or CVR Refining applied for a small refinery exemption under 40 CFR part 80.1441;
- 3) A list of each compliance year between 2011 and 2017 in which CVR Energy or CVR Refining received a small refinery exemption pursuant to 40 CFR part 80.1441;
- 4) A list of the compliance years between 2011 and 2017 in which CVR Energy's or CVR Refining elected to comply with the RFS program in aggregate;
- 5) A list of the compliance years between 2011 and 2017 in which CVR Energy or CVR Refining elected to comply with RFS program blending requirements on a refinery by refinery basis;

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<sup>5</sup> *With flood of EPA waivers, refineries find way around ethanol mandate*, The Houston Chronicle (Apr. 4, 2018) ([www.houstonchronicle.com/business/article/With-flood-of-EPA-waivers-refineries-find-way-12805971.php](http://www.houstonchronicle.com/business/article/With-flood-of-EPA-waivers-refineries-find-way-12805971.php)).

<sup>6</sup> Letter from EPA Administrator Scott Pruitt to Rep. Frank Pallone, Jr. (Dec. 6, 2017).

<sup>7</sup> *Id.*

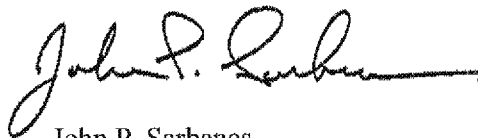
- 6) If a change in the selection of compliance level occurred during this period please indicate in which compliance year the request was made and when during the compliance year the change was requested;
- 7) For each compliance year in which a waiver was granted, what was the total volumes that were waived and what proportion of CVR's obligation for blending under the RFS program was waived?
- 8) Please provide a detailed description of the criteria EPA uses to evaluate applications for small refinery exemptions.
- 9) Please provide examples of conditions a refinery might experience that would support EPA finding that it was experiencing "disproportionate hardship."

During the hearing, I also asked about the awareness reviews that your staff were conducting as part of the FOIA review process. I am concerned these reviews may result in the inappropriate withholding or delay of information and request the following:

- 1) The start date, end date, and length of review for all FOIA awareness reviews conducted during your term as Administrator; and
- 2) A list of all FOIA requests currently under awareness review by EPA political appointees.

Thank you for your attention to these important issues. I respectfully request a response no later than Friday, May 18, 2018. Should you have any questions, please contact Raymond O'Mara or Anna Killius of my staff at (202) 225-4016.

Sincerely,



John P. Sarbanes  
Member of Congress

# United States Senate

WASHINGTON, DC 20510

May 08, 2018

The Honorable Scott Pruitt  
Administrator  
U.S. Environmental Protection Agency  
1200 Pennsylvania Ave. NW  
Washington, D.C. 20460

Dear Administrator Pruitt,

A new report earlier this week indicated that the Environmental Protection Agency (EPA) granted CVR Energy Inc. (CVR) – a petroleum refining company linked to Carl Icahn – an “economic hardship waiver” from the Renewable Fuel Standard (RFS).<sup>1</sup> We have previously raised concerns about Mr. Icahn's actions related to the RFS, and his access to key Administration RFS decisionmakers, and are troubled by the news that a corporation that made a profit of over \$200 million in 2017<sup>2</sup>, and that is owned by a billionaire former “special adviser” to the President who is currently under investigation by federal prosecutors for his activities in the RFS market, has now received a “hardship waiver” from the RFS. We are writing today to request information about the reported exemption for CVR and about Mr. Icahn's role in EPA's decision to grant this waiver.

Mr. Icahn, a former “special advisor to the President on issues relating to regulatory reform”<sup>3</sup> resigned from his position at the White House last August after reports surfaced that he was actively working to change RFS regulations to benefit CVR, a company in which he currently serves as chairman of the board and owns a controlling interest.<sup>4</sup> Mr. Icahn “made a massive bet in 2016” that the price of the renewable fuel credits would drop.<sup>5</sup> He then – as an unpaid adviser to President Trump – recommended personnel and policies that did in fact cause the price of these credits to drop. The net result was an “impossible” “rare profit” on the credits, “a \$50 million turnaround” from Mr. Icahn's initial investment.<sup>6</sup>

Mr. Icahn also publicly supported your nomination, and claimed was consulted before President-elect Trump selected you for the position.<sup>7</sup> After you were nominated as EPA

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<sup>1</sup> Jarrett Renshaw and Chris Prentice, “U.S. EPA grants biofuels waiver to billionaire Icahn's oil refinery – sources,” *Reuters* (April 30, 2018) (Online at: <https://www.reuters.com/article/us-usa-biofuels-epa-icahn-exclusive/exclusive-u-s-epa-grants-biofuels-waiver-to-billionaire-icahns-oil-refinery-sources-idUSKBN1110YB>).

<sup>2</sup> CVR Energy Inc. (2017). “Form 10-K” SEC (Online at: <https://www.sec.gov/Archives/edgar/data/1376139/000137613918000016/cvi2017form10-kx12312017.htm>).

<sup>3</sup> David Benoit, “Trump Names Carl Icahn as Adviser on Regulatory Overhaul,” *Wall Street Journal* (Dec. 21, 2016) (Online at [www.wsj.com/articles/trump-to-name-icahn-as-adviser-on-regulatory-overhaul-1482354552](http://www.wsj.com/articles/trump-to-name-icahn-as-adviser-on-regulatory-overhaul-1482354552)).

<sup>4</sup> Patrick Radden Keefe, “Carl Icahn's failed raid on Washington,” *The New Yorker* (August 28, 2017) (Online at: <https://www.newyorker.com/magazine/2017/08/28/carl-icahns-failed-raid-on-washington>).

<sup>5</sup> Chris Prentice and Jarrett Renshaw, “Inside Edge – Trump advisor Icahn's big bet against biofuels credits,” *Reuters* (Apr. 12, 2017) (Online at: <https://www.reuters.com/article/us-usa-biofuels-icahn-exclusive-idUSKBN17E0D6>).

<sup>6</sup> Jarrett Renshaw and Chris Prentice, “Big short position on biofuels generated profit for Icahn's refiner,” *Reuters* (May 1, 2017) (<http://www.reuters.com/article/us-cvr-energy-biofuels-idUSKBN17X2HX>).

<sup>7</sup> Mario Parker, “Icahn Cheers Trump EPA Pick Amid Calls for Fuel-Rule Revamp,” *Bloomberg* (December 9,

Administrator, Mr. Icahn said, “He’s someone I think will do away with many of the problems at EPA...and I do think he feels strongly about the absurdity of these [RFS] obligations....”<sup>8</sup> The Justice Department has since opened an investigation into whether Mr. Icahn violated any laws while working on RFS policy during his tenure at the White House.<sup>9</sup>

As you know, the RFS requires refiners and importers of fossil fuels in the United States to blend “renewable fuels into their gasoline or diesel fuel products, or ... [acquire] credits that represent the required renewable fuel volume.”<sup>10</sup> Refiners can receive a temporary exemption from these requirements if they produce less than 75,000 barrels of oil per calendar day (small refinery), and prove to the EPA that complying with the RFS “would impose a disproportionate economic hardship”<sup>11</sup> on them. According to public reports, the EPA has granted at least 24 waivers in recent months – a significant change from the 6 to 8 waivers that have been granted annually for the past several years. CVR - which reported profits of over \$230 million in 2017<sup>12</sup> - received an exemption this year after having been denied in a previous year.<sup>13</sup>

In order to better understand the reports that CVR was able to receive an exemption, I ask that you provide answers to the following questions no later than May 22, 2018:

1. Are the reports accurate that CVR received an exemption from RFS standards? If so, please provide which refineries or refinery got the exemption and their daily operating production.
2. For refineries listed in response to question 1 with daily operating capacity above 75,000 barrels of oil per calendar day, please explain how EPA determined that CVR qualified for a hardship waiver, as this would be in direct conflict with the statutory requirement.<sup>14</sup>
3. For refineries listed in response to question 1 with daily operating capacity below 75,000 barrels of oil per day, the statutory small refinery exemption language requires that evaluation of these hardship petitions are done in consultation with the Secretary of Energy.

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2016) (Online at: <https://www.bloomberg.com/news/articles/2016-12-09/oil-friendly-epa-pick-has-icahn-seeing-trump-revamp-of-fuel-rule>).

<sup>8</sup> “Icahn: Pruitt a Great Pick for EPA,” *Bloomberg* (Online at: <https://www.bloomberg.com/politics/videos/2016-12-07/icahn-pruitt-a-great-pick-for-epa>)

<sup>9</sup> Jarrett Renshaw and Chris Prentice, “U.S. EPA grants biofuels waiver to billionaire Icahn's oil refinery – sources,” *Reuters* (April 30, 2018) (Online at: <https://www.reuters.com/article/us-usa-biofuels-epa-icahn-exclusive/exclusive-u-s-epa-grants-biofuels-waiver-to-billionaire-icahns-oil-refinery-sources-idUSKBN1I10YB>)

<sup>10</sup> “Renewable Fuel Standard Program” *EPA* (Online at: <https://www.epa.gov/renewable-fuel-standard-program/renewable-fuel-standard-exemptions-small-refineries>)

<sup>11</sup> 40 CFR Part 80.1441(e)(1)

<sup>12</sup> CVR Energy Inc. (2017). “Form 10-K” *SEC* (Online at: <https://www.sec.gov/Archives/edgar/data/1376139/000137613918000016/cvi2017form10-kx12312017.htm>).

<sup>13</sup> Luis Sanchez and Miranda Green, “EPA grants waiver to oil refinery owned by billionaire ex-Trump adviser: report,” *The Hill* (April 30, 2018) (Online at: <http://thehill.com/homenews/administration/385455-epa-grants-waiver-to-oil-refinery-owned-by-billionaire-ex-trump>).

<sup>14</sup> See, 42 U.S. Code Section 7545 (o)(1)(K)



- a. Was DOE consulted during the process of determining whether there was disproportionate economic hardship for the refinery in question?
  - b. The law also requires that DOE modeling and economic analysis be used to determine the nature of the economic hardship,<sup>15</sup> please provide all reports and background data that was used in approval of the wavier.
4. Which officials at EPA determined that CVR was entitled to a hardship waiver?
5. When and how did you become aware of the waiver request?
6. Were you involved in the decision to grant the waiver? If so, what role did you play?
7. Did you or any other EPA official have any discussion of this exemption, or RFS policy generally, with Mr. Icahn or anyone else affiliated with or representing CVR? If so, please identify all such conversations, the date on which they occurred, and the nature of the conversation.
8. Were any White House officials involved in, or aware of, the decision to grant CVR an exemption? If so, please identify which individuals were involved, and the nature of their involvement.
9. Please provide copies of all email or other communications between any EPA officials and any CVR employees or representatives related to the CVR waiver request.

Thank you for your attention to this matter.

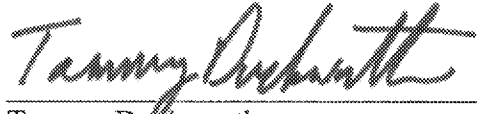
Sincerely,

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<sup>15</sup> See, 42 U.S. Code Section 7545 (o)(9)(B)(ii)



Elizabeth Warren  
United States Senator



Tammy Duckworth  
United States Senator



Sherrod Brown  
United States Senator



Tammy Baldwin  
United States Senator



Sheldon Whitehouse  
United States Senator



Amy Klobuchar  
United States Senator



Tina Smith  
United States Senator

Message

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**From:** Stahle, Susan [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=B25318C6014D4FB985288E15143C8596-SSTAHLE]  
**Sent:** 12/3/2018 3:30:01 PM  
**To:** Cohen, Janet [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=d94b854e69cd4f9e80db946bf9d1c1b2-Cohen, Janet]; Nelson, Karen [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=3492adee9fab4a02956fcf63f0de048b-Nelson, Kar]  
**CC:** Bunker, Byron [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=ddf7bcf023d241a9a477a2dc75d5901c-Bunker, Byron]; Orlin, David [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=aa64dad518d64c5f9801eb9bb15b7ec3-DORLIN]  
**Subject:** Producers United (PU) litigation - getting Byron's signature on these two versions of the declaration - need to file today  
**Attachments:** PU - Declaration of Byron Bunker - final - under seal - 120318.doc; PU - Declaration of Byron Bunker - final - public redacted version - 120318.doc  
  
**Importance:** High

Hi –

Attached are the final versions of Byron's declaration that we plan to attach to our opposition to PU's motion to stay or expedite. One is for filing under seal (no redactions). The other is the public version with what we plan to redact highlighted in yellow.

Would you be able to help me get these two documents signed and dated by Byron, then turn those two documents into PDF files, and email those back to me? DOJ or I will actually make the redactions and include the attachments.

Our opposition is due today and we'd like to file around mid-day if we can.

Please let me know if you have any questions.

Thank you!

Susan Stahle  
Air and Radiation Law Office  
Office of General Counsel  
U.S. Environmental Protection Agency  
WJCN-7502B  
202-564-1272

ROBERT P. CASEY, JR.  
PENNSYLVANIA

COMMITTEES:  
AGRICULTURE, NUTRITION,  
AND FORESTRY

FINANCE

HEALTH, EDUCATION,  
LABOR, AND PENSIONS

SPECIAL COMMITTEE ON AGING  
JOINT ECONOMIC

# United States Senate

WASHINGTON, DC 20510

September 27, 2017

The Honorable Scott Pruitt  
Administrator  
U.S. Environmental Protection Agency  
1200 Pennsylvania Avenue NW  
Washington, D.C. 20004

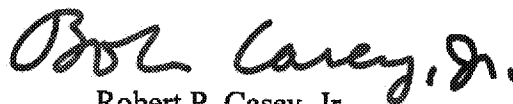
Dear Administrator Pruitt:

I write in support of American Refining Group, Inc.'s (ARG) "hardship relief" petition from its 2017 Renewable Fuel Standard (RFS) obligation. The high cost of "renewable identification numbers" (RINS) have placed significant financial stress on ARG's bottom line, costing the company \$2.1 million (need a year or time frame).

ARG is a small refinery, employing 300 people in McKean County, Pennsylvania. The refinery has a rated capacity of 11,000 barrels of crude oil per day and refines a specialty, highly paraffinic Pennsylvania grade crude oil that yields lubricant base oils, waxes, resins, solvents and extracts.

ARG's importance to the economy of McKean County cannot be overstated. These good-paying, family-sustaining jobs in rural Pennsylvania are being threatened by a volatile and opaque RINS market. I do not believe that this was Congress' intent when the Renewable Fuel Standard was created, as evidenced by the inclusion of an exemption for small refiners who are able to show disproportionate economic hardship. I ask that you exercise your authority and grant full, fair and prompt consideration to ARG's petition.

Sincerely,



Robert P. Casey, Jr  
United States Senator

Message

---

**From:** Cohen, Janet [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=D94B854E69CD4F9E80DB946BF9D1C1B2-COHEN, JANET]  
**Sent:** 3/16/2017 5:26:08 PM  
**To:** Stahle, Susan [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=b25318c6014d4fb985288e15143c8596-SSTAHLE]; Bunker, Byron [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=ddf7bcf023d241a9a477a2dc75d5901c-Bunker, Byron]; Hengst, Benjamin [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=c414e2bf04a246bb987d88498eefff06-Hengst, Benjamin]  
**CC:** Orlin, David [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=aa64dad518d64c5f9801eb9bb15b7ec3-DORLIN]  
**Subject:** RE: Updated slides for briefing on small refinery hardships  
**Attachments:** 3\_16\_17 DRAFT small refinery briefing for Administrator Pruitt\_jc.pptx

Byron, sorry about multiple versions but Sue's wasn't attached so here are my edits. Just two of them – see comment on slide 3 and updated version of table on slide 16 with HF added. I can swap out the table in whatever final version you want me to.

- J. -

---

**From:** Stahle, Susan  
**Sent:** Thursday, March 16, 2017 1:07 PM  
**To:** Bunker, Byron <bunker.byron@epa.gov>; Hengst, Benjamin <Hengst.Benjamin@epa.gov>  
**Cc:** Cohen, Janet <cohen.janet@epa.gov>; Orlin, David <Orlin.David@epa.gov>  
**Subject:** RE: Updated slides for briefing on small refinery hardships

I added edits/comments to the slides (starting at slide 7 and through the Appendix). I used strikethrough and highlighted changes in red. My edits were to conform our language in these slides with how we have talked about these things in the decision documents and in our briefs.

Susan Stahle  
Attorney-Advisor  
Air and Radiation Law Office  
Office of General Counsel  
U.S. Environmental Protection Agency  
202-564-1272 (ph)  
202-564-5603 (fax)  
[stahle.susan@epa.gov](mailto:stahle.susan@epa.gov)

---

**From:** Bunker, Byron  
**Sent:** Thursday, March 16, 2017 12:16 PM  
**To:** Hengst, Benjamin <[Hengst.Benjamin@epa.gov](mailto:Hengst.Benjamin@epa.gov)>  
**Cc:** Cohen, Janet <[cohen.janet@epa.gov](mailto:cohen.janet@epa.gov)>; Orlin, David <[Orlin.David@epa.gov](mailto:Orlin.David@epa.gov)>; Stahle, Susan <[Stahle.Susan@epa.gov](mailto:Stahle.Susan@epa.gov)>  
**Subject:** Updated slides for briefing on small refinery hardships

Attached are draft slides for an RFS Small Refinery updated. Please review ASAP.

Thanks,

Byron

\*\*\*\*\*

Byron Bunker  
Director Compliance Division  
Office of Transportation and Air Quality  
Environmental Protection Agency  
2000 Traverwood Drive  
Ann Arbor, MI 48105  
[Bunker.Byron@epa.gov](mailto:Bunker.Byron@epa.gov)  
Phone: (734) 214-4155  
Mobile: (734) 353-9623

\*\*\*\*\*

Message

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**From:** Bunker, Byron [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=DDF7BCF023D241A9A477A2DC75D5901C-BUNKER, BYRON]  
**Sent:** 3/30/2015 3:32:58 PM  
**To:** kyle.winslow@ee.doe.gov; Carmine.Difiglio@hq.doe.gov  
**CC:** Grundler, Christopher [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=d3be58c2cc8545d88cf74f3896d4460f-Grundler, Christopher]  
**Subject:** RE: DOE-EPA RFS small refiners meeting wk of April 6 for HEWD and SEWD majority

Kyle,

Chris forwarded your note to me regarding a potential meeting about small refiners in the RFS program. I haven't yet been able to follow up with Chris to make a recommendation how to best support this potential meeting. I will get back with you on this question as soon as possible.

Thanks,

Byron

\*\*\*\*\*

Byron Bunker  
Director Compliance Division  
Office of Transportation and Air Quality  
Environmental Protection Agency  
2000 Traverwood Drive  
Ann Arbor, MI 48105  
Bunker.Byron@epa.gov  
Phone: (734) 214-4155  
Mobile: (734) 353-9623  
\*\*\*\*\*

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**From:** Grundler, Christopher  
**To:** Bunker, Byron  
**Subject:** Fwd: DOE-EPA RFS small refiners meeting wk of April 6 for HEWD and SEWD majority

Begin forwarded message:

**From:** "Winslow, Kyle" <Kyle.Winslow@EE.Doe.Gov>  
**Date:** March 30, 2015 at 10:11:32 AM EDT  
**To:** "'grundler.christopher@epa.gov'" <grundler.christopher@epa.gov>  
**Cc:** "Difiglio, Carmine" <Carmine.Difiglio@hq.doe.gov>  
**Subject:** RE: DOE-EPA RFS small refiners meeting wk of April 6 for HEWD and SEWD majority

Hello,

I was just following up on this to see if your designee would be interested / able to attending a briefing on RFS small refiners exemption with House and Senate Appropriations majority staff on the afternoon of Apr. 7 or 8?

Thanks for your help,

Kyle

---

**From:** Winslow, Kyle  
**Sent:** Thursday, March 26, 2015 11:20 AM  
**To:** '[grundler.christopher@epa.gov](mailto:grundler.christopher@epa.gov)'  
**Subject:** DOE-EPA RFS small refiners meeting wk of April 6 for HEWD and SEWD majority

Chris,

DOE CFO is setting up a briefing at the request of HEWD and SEWD majority staff for the week of April 6 to discuss the Renewable Fuel Standard and the small refiners exemption.

In particular, SEWD/HEWD want to:

- Understand the small refiner issue better,
- Understand what is the profit threshold is, when it was changed or set, and
- Why and whether this is a controversial issue.

Carmine Difiglio of DOE's Office of Energy Policy and Systems Analysis suggested that we reach out to you because EPA participation would be helpful. Carmine mentioned Byron Bunker or another designee might want to attend this briefing.

We'd like to shoot for the afternoon of the Apr. 7th or some time on the 8th. Could you let us know who you'd like to attend, and if these times work? Alternatively, please let us who from EPA we should be working with to make sure you are represented.

Thanks,

Kyle



Message

**From:** Bunker, Byron [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=DDF7BCF023D241A9A477A2DC75D5901C-BUNKER, BYRON]  
**Sent:** 2/20/2018 2:41:03 PM  
**To:** Manners, Mary [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=ebdb1392504a4b71894970b1a7bb186c-Manners, Mary]; Cohen, Janet [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=d94b854e69cd4f9e80db946bf9d1c1b2-Cohen, Janet]; Weihrauch, John [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=74d426b7439045d9a0a65b186ea68b21-Jweihrau]; Caldwell, Jim [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=e76309d53f9c47b8a41b784cd68ea7c4-Jcaldwel]; Gustafson, Kurt [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=8bb4c659b0734beba13c05f6f095df47-kgustafs]  
**Subject:** FW: For drafting/review by Pruitt EPW QFRs: Deadline 10A.M. Friday Feb. 23  
**Attachments:** 2018.02.15 - EPW -- All Pruitt QFRs 01.30.2018 - PROGRAM OFFICES NOTED.DOCX; 02-16-2018 - HEC 12.7.17 Hearing QFRs\_Pruitt - FINAL.PDF

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**From:** Sutton, Tia  
**Sent:** Friday, February 16, 2018 4:21 PM  
**To:** Charmley, William <charmley.william@epa.gov>; Sargeant, Kathryn <sargeant.kathryn@epa.gov>; Olechiw, Michael <olechiw.michael@epa.gov>; Moran, Robin <moran.robin@epa.gov>; Nelson, Brian <nelson.brian@epa.gov>; Moulis, Charles <moulis.charles@epa.gov>; Machiele, Paul <machiele.paul@epa.gov>; Burkholder, Dallas <burkholder.dallas@epa.gov>; Korotney, David <korotney.david@epa.gov>; Michaels, Lauren <Michaels.Lauren@epa.gov>; Simon, Karl <Simon.Karl@epa.gov>; Lie, Sharyn <Lie.Sharyn@epa.gov>; Moltzen, Michael <Moltzen.Michael@epa.gov>; Bunker, Byron <bunker.byron@epa.gov>; Manners, Mary <manners.mary@epa.gov>; Cohen, Janet <cohen.janet@epa.gov>; Le, Madison <Le.Madison@epa.gov>; Weihrauch, John <Weihrauch.John@epa.gov>; Anderson, Robert <Anderson.Robert@epa.gov>; Orlin, David <Orlin.David@epa.gov>; Li, Ryland (Shengzhi) <Li.Ryland@epa.gov>; Dubois, Roland <Dubois.Roland@epa.gov>; Argyropoulos, Paul <Argyropoulos.Paul@epa.gov>  
**Cc:** Burch, Julia <Burch.Julia@epa.gov>; Cook, Leila <cook.leila@epa.gov>; Hengst, Benjamin <Hengst.Benjamin@epa.gov>  
**Subject:** For drafting/review by Pruitt EPW QFRs: Deadline 10A.M. Friday Feb. 23

All,

Attached are the QFRs from the Administrator's January 30, 2018 EPW hearing (<https://www.epw.senate.gov/public/index.cfm/hearings?ID=8E3E883C-477F-4A6A-9F1E-1DDAADBDAF32>). We have been asked to get responses to Bill W for review first thing next Friday AM, so we need all draft responses in by **COB Thursday, 2/22** so Chris can review.

The table below denotes the OTAQ-related QFRs, but I'm attaching the whole set in case there are others that we should weigh in on. Please note as you draft responses:

- 1) Brevity is best! And if it's a multi-part question, just respond to the whole thing in one fell swoop (rather than each part individually).
- 2) Please try to use previously-cleared statements – from other QFRs (see attached pdf of the final cleared responses to the 12/7/17 HEC QFRs), press releases/Administrator speeches, testimony (see link above), letters, etc.
- 3) If you would like to provide input to a QFR that wasn't assigned to OTAQ, please let me & Julia know so we can help coordinate.
- 4) Again- deadline is **COB Thursday**. And be **BRIEF**!

| Member   | Question # | OAR Office | Subject                                 |
|----------|------------|------------|-----------------------------------------|
| Barrasso | 6          | OTAQ       | MTE                                     |
| Barrasso | 7          | OTAQ       | RVOs- Biodiesel                         |
| Carper   | 19         | OAQPS/OTAQ | PM 2.5, glider kits                     |
| Carper   | 31         | OTAQ       | RIN market manipulation                 |
| Carper   | 32         | OTAQ       | RFS- EV pathways                        |
| Ernst    | 61         | OTAQ       | RFS- reform (incl RIN reform)           |
| Ernst    | 62         | OTAQ       | RFS- RINs & E15                         |
| Ernst    | 63         | OTAQ       | RFS- RINs                               |
| Fischer  | 65         | OTAQ       | RFS- reform (incl RIN reform)           |
| Fischer  | 66         | OTAQ       | RFS - PES bankruptcy                    |
| Fischer  | 67         | OTAQ       | RFS - PES bankruptcy                    |
| Fischer  | 68         | OTAQ       | RFS- cellulosic/D3 RINs                 |
| Fischer  | 69         | OTAQ       | RFS- cellulosic/D3 RINs                 |
| Fischer  | 70         | OTAQ       | RFS- 2019 RVO & cellulosic volumes      |
| Wicker   | 108        | OTAQ       | RFS- small refinery hardship exemptions |

Message

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**From:** Frye, Tony (Robert) [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=58C08ABDFC1B4129A10456B78E6FC2E1-FRYE, ROBER]  
**Sent:** 7/26/2018 6:28:02 PM  
**To:** Gunasekara, Mandy [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=53d1a3caa8bb4ebab8a2d28ca59b6f45-Gunasekara,]; Dominguez, Alexander [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=5ced433b4ef54171864ed98a36cb7a5f-Dominguez,]; Woods, Clint [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=bc65010f5c2e48f4bc2aa050db50d198-Woods, Clin]  
**CC:** Palich, Christian [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=330ad62e158d43af93fcbbece930d21a-Palich, Chr]  
**Subject:** OAR Binder Docs  
**Attachments:** OAR-1 CAFE GHG Joint NPRM.docx; OAR-2 California Waiver.docx; OAR-3 CPP.docx; OAR-4 MATS.docx; OAR-5 Gliders.docx; OAR-6 NSR.docx; OAR-7 Once in Always In.DOCX; OAR-8 HFCs.docx; OAR-9 RFS.DOCX; OAR-10 RFS SRE.docx; OAR-11 Uranium ISR Part 192.docx; OAR-12 DERA.docx; OAR-13 Trailers.docx; OAR-14 Diesel Generators in Alaska.docx; OAR-15 Oil-Gas NSPS cw.docx; OAR-16 NAAQS General SETTING and DESIGNATING cw.docx; OAR-17 NAAQS General ATTAINMENT cw.docx; OAR-18 Cross State Air Pollution Rule (CSAPR) cw.docx; OAR-19 BRICK MACT.docx

Here is the universe of docs I have for you all. Thanks

**Tony Frye**  
Special Advisor  
Office of Congressional & Intergovernmental Affairs  
Environmental Protection Agency  
Cell: 202.603.3225

Message

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**From:** Greaves, Holly [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=ABCB6428B3DF40A9A78B059A8BA59707-GREAVES, HO]  
**Sent:** 8/29/2017 12:10:07 PM  
**To:** Jackson, Ryan [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=38bc8e18791a47d88a279db2fec8bd60-Jackson, Ry]  
**Subject:** Items needing your review  
**Attachments:** OB SAC Capability Document.docx; ATT00001.txt

Hi Ryan, thanks for checking on items that need your attention.

At this very moment, we are awaiting your review of senate impact statements. Please see attached- the senate appropriations staff would like these before month end.

By Thursday, you will also have CJ sections and the strategic plan to review. However, I will come discuss those items with you in person.

Thanks,  
Holly

Message

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**From:** Will Hupman [HupmanW@api.org]  
**Sent:** 2/16/2018 12:39:59 PM  
**To:** Khary Cauthen [cauthenk@api.org]  
**CC:** Jackson, Ryan [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=38bc8e18791a47d88a279db2fec8bd60-Jackson, Ry]; Dickerson, Aaron [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=d0440d9f06994021827e0d0119126799-Dickerson,]  
**Subject:** Re: Scheduling Request: American Petroleum Institute Downstream Executives 6 March

Thanks, Ryan. Among other topics, our Execs hope to discuss the small refinery exemptions under the RFS and the RVP waiver for E15. On small refineries, our folks are urging for a level playing field regardless of facility size and location. On RVP for E15, we understand y'all are conducting an internal review and would like to check on that. Happy to provide any additional materials or information. Will

-----  
Will Hupman  
Director – Federal Relations  
American Petroleum Institute  
desk: [202-682-8396](tel:202-682-8396)  
cell: [202-615-7192](tel:202-615-7192)  
[hupmanw@api.org](mailto:hupmanw@api.org)

On Feb 16, 2018, at 7:31 AM, Khary Cauthen <[cauthenk@api.org](mailto:cauthenk@api.org)> wrote:

Ryan: I've also copied Will Hupman who can elaborate on the topic of small refinery exemption and our work with the Congress on the RFS.

-----  
**From:** Jackson, Ryan [<mailto:jackson.ryan@epa.gov>]  
**Sent:** Thursday, February 15, 2018 8:09 PM  
**To:** Khary Cauthen  
**Cc:** Dickerson, Aaron  
**Subject:** RE: Scheduling Request: American Petroleum Institute Downstream Executives 6 March

Ok. Can you shoot me the topics?

You also should get a call from the WH.

-----  
**From:** Khary Cauthen [<mailto:cauthenk@api.org>]  
**Sent:** Thursday, February 15, 2018 11:49 AM  
**To:** Jackson, Ryan <[jackson.ryan@epa.gov](mailto:jackson.ryan@epa.gov)>  
**Subject:** Scheduling Request: American Petroleum Institute Downstream Executives 6 March

Ryan: Good afternoon, hope that all is well with you. The American Petroleum Institute Downstream Executives will be in town on March 6th and would like the opportunity to sit down with you to discuss fuel policy- namely the Renewable Fuels Standard. The committed attendees for the day are listed below and other meetings while they are in town include Congressmen Shimkus, Flores and Senator Cornyn as well as a meeting with the EPA.

Right now, we have Hill meetings scheduled for after lunch with the morning wide open. Ideally I would like to have them visit with in the morning then have them remain on the Hill the rest of their visit but of course want to be flexible to your schedule.

Thanks for considering this request and look forward to meeting with you on March 6<sup>th</sup>.

Khary

202-682-8209 o

202-744-9959 c

Attendees

Dale Walsh – President, Chevron Products Americas

Dave Brownell – Senior Vice President, Global Operations, ExxonMobil Fuels & Lubricants

Don Templin – President, Marathon Petroleum Corporation

Message

---

**From:** Khary Cauthen [cauthenk@api.org]  
**Sent:** 2/16/2018 2:05:34 AM  
**To:** Jackson, Ryan [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=38bc8e18791a47d88a279db2fec8bd60-Jackson, Ry]  
**CC:** Dickerson, Aaron [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=d0440d9f06994021827e0d0119126799-Dickerson,]  
**Subject:** Re: Scheduling Request: American Petroleum Institute Downstream Executives 6 March

Topics include

1. Discussion on our continuing work with the Hill on RFS legislation.
2. Small refinery exemption and related RFS provisions.

Sent from my iPhone

On Feb 15, 2018, at 8:09 PM, Jackson, Ryan <jackson.ryan@epa.gov> wrote:

Ok. Can you shoot me the topics?

You also should get a call from the WH.

---

**From:** Khary Cauthen [mailto:cauthenk@api.org]  
**Sent:** Thursday, February 15, 2018 11:49 AM  
**To:** Jackson, Ryan <jackson.ryan@epa.gov>  
**Subject:** Scheduling Request: American Petroleum Institute Downstream Executives 6 March

Ryan: Good afternoon, hope that all is well with you. The American Petroleum Institute Downstream Executives will be in town on March 6th and would like the opportunity to sit down with you to discuss fuel policy- namely the Renewable Fuels Standard. The committed attendees for the day are listed below and other meetings while they are in town include Congressmen Shimkus, Flores and Senator Cornyn as well as a meeting with the EPA.

Right now, we have Hill meetings scheduled for after lunch with the morning wide open. Ideally I would like to have them visit with in the morning then have them remain on the Hill the rest of their visit but of course want to be flexible to your schedule.

Thanks for considering this request and look forward to meeting with you on March 6<sup>th</sup>.

Khary  
202-682-8209 o  
202-744-9959 c

Attendees

Dale Walsh – President, Chevron Products Americas  
Dave Brownell – Senior Vice President, Global Operations, ExxonMobil Fuels & Lubricants  
Don Templin – President, Marathon Petroleum Corporation

Message

---

**From:** Jackson, Ryan [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=38BC8E18791A47D88A279DB2FEC8BD60-JACKSON, RY]  
**Sent:** 12/19/2018 7:28:24 PM  
**To:** Wehrum, Bill [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=33d96ae800cf43a3911d94a7130b6c41-Wehrum, Wil]; Gunasekara, Mandy [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=53d1a3caa8bb4ebab8a2d28ca59b6f45-Gunasekara,]; Konkus, John [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=555471b2baa6419e8e141696f4577062-Konkus, Joh]; TROY M. LYONS (lyons.troy@epa.gov) [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=15e4881c95044ab49c6c35a0f5eef67e-Lyons, Troy]  
**Subject:** FW: Report: Exxon Mobil gets economic hardship RFS waiver

So...

---

**From:** POLITICO Pro [mailto:politicoemail@politicopro.com]  
**Sent:** Wednesday, December 19, 2018 2:24 PM  
**To:** Jackson, Ryan <jackson.ryan@epa.gov>  
**Subject:** Report: Exxon Mobil gets economic hardship RFS waiver

By Eric Wolff

12/19/2018 02:21 PM EDT

Oil giant Exxon Mobil received an economic hardship waiver from the EPA exempting one of its refineries from compliance with the Renewable Fuel Standard, Reuters reported today, citing three unnamed sources.

The waiver was given to Exxon's Billings, Mont. refinery which has a processing capacity of 60,000 barrels of crude a day, well below EPA's "small refinery" threshold of 75,000 barrels a day. Exxon reported \$6.24 billion in profits in the third quarter.

EPA's use of economic hardship waivers has generated controversy for the last two years, as it has used the waivers to reduce the mandate by more than 1 billion gallons.

Exxon declined to comment for the story.

EPA declined to confirm the report, but said its statutory process for determining whether a waiver is warranted "does not include consideration of any affiliated parent company or the parent company's financial standing."

EPA's website says it has granted 29 exemptions for the 2017 compliance year, and that it has seven more pending as well as 15 petitions for the 2018 year. The agency has not denied any petitions since 2015.

*To view online:*

<https://subscriber.politicopro.com/agriculture/whiteboard/2018/12/report-exxon-mobil-gets-economic-hardship-rfs-waiver-2390023>

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# POLITICOPRO

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**Congress of the United States**  
**Washington, DC 20515**

July 16, 2018

The Honorable Andrew Wheeler  
Acting Administrator  
Environmental Protection Agency  
1200 Pennsylvania Avenue NW  
Washington, DC 20004

Dear Administrator Wheeler:


You hold a very important role as the acting Administrator of the U.S. Environmental Protection Agency (EPA). It is our expectation you will reinforce the Renewable Fuel Standard (RFS) and bolster our nation's energy security. We're encouraged by your statement at your confirmation hearing last year where you said, "The RFS is the law of the land. I fully support the program." Iowa farmers deserve nothing less.

Renewable fuels are critical to achieving energy independence in the United States and play an important role in Iowa's economy. We remain concerned about the demand destruction of 2.25 billion gallons due to the unprecedented number of small refinery "hardship" waivers granted in 2016 and 2017. The recently released 2019 proposed rule indicates there will be no accounting moving forward of gallons that might be waived under the small refinery waivers in order to maintain the statutory Renewable Volume Obligation. A reduction in demand for renewable fuels pushes commodity prices even lower and farmers are already facing low commodity prices. We strongly urge you to reconsider the proposed rule and work to ensure that the final rule is structured to ensure that any waivers granted do not reduce the overall Renewable Volume Obligation.

President Trump directed the EPA to allow for the sale of E-15 year round but unfortunately this hasn't come to fruition. This is particularly frustrating given the damaging impact that previously granted waivers have already had on RIN prices and renewable fuel demand. As Iowa corn farmers are anxiously awaiting their 2018 crop, a Reid Vapor Pressure (RVP) waiver would help grow demand and improve the markets. Since its creation, the RFS has helped us reduce our dependency on foreign oil, promoted cleaner air, created good-paying jobs, given consumers cheaper fuel, and spurred economic growth in our rural communities.

Across Iowa, cooperatives and renewable fuel plants dot the landscape. We invite you to visit Iowa and look forward to working with you.

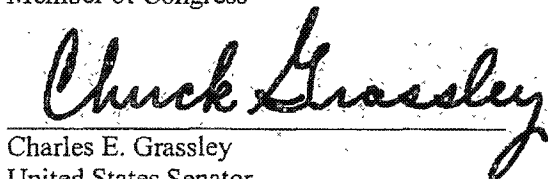
Sincerely,



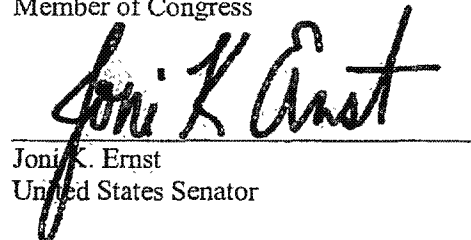
David Young  
Member of Congress



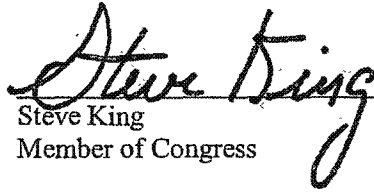
Dave Loebsack  
Member of Congress

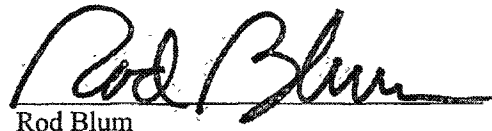


Charles E. Grassley  
United States Senator



Joni K. Ernst  
United States Senator

  
Steve King  
Member of Congress

  
Rod Blum  
Member of Congress

# United States Senate

WASHINGTON, DC 20510

March 15, 2018

President Donald J. Trump  
The White House  
1600 Pennsylvania Avenue, NW  
Washington, DC 20500

Dear Mr. President,

We appreciate your commitment to the Renewable Fuels Standard (RFS) and your earnest leadership in pursuing a win-win solution for the biofuels and refinery industries. The RFS is a key driver of economic growth and jobs across rural America. It expands markets for key commodities like corn, sorghum, and soybeans grown all across the country and is extremely important to the economic well-being of our constituents.

We are opposed to applying a “waiver cap” mechanism of any kind to the RFS. A waiver cap is designed to abruptly drive down the price of Renewable Identification Numbers (RINs) by reducing the amount of biofuels produced. The proposed waiver credit would replace gallons of manufactured biofuels with paper credits. Enacting such a policy makes it impossible for you to honor your commitment of a 15 billion gallon RFS.

Recently, an economic study commissioned by Valero became publicly available and projects outcomes in line with our expectations. The study states, “*a recent proposal of a \$0.10 per RIN waiver credit price would only be used for replacing RINs required beyond the blend wall.*” In other words, the \$0.10 RIN waiver is intentionally designed to limit the RFS to 10% ethanol blends. Implementing such a waiver would result in a significant reduction of higher blends of ethanol like E15 and E85, as well as biodiesel. In many areas, those fuels would be eliminated from the marketplace. Let there be no doubt—the consequences of a waiver would be severe and immediate across the Midwest, impacting farmers and biofuel stakeholders alike.


There are a number of options available that reduce RIN prices without intentionally undermining the RFS if that is the ultimate policy goal. As we all know from basic economics, if the price of an item needs to go down, producing more of that item is the simple solution. Therefore, we have suggested several true win-win solutions, such as allowing E15 to be sold year-round and generating more RINs, as constructive ways to lower RIN prices while still honoring your commitment to 15 billion gallons of biofuels.


We feel it is very important to let you know our strong opposition to placing a waiver cap on RINs that is intentionally designed to undermine our shared commitment of 15 billion gallons of annual biofuels production. We therefore request a meeting with you at your earliest convenience to discuss the harm a RIN waiver cap would impose on the American agriculture

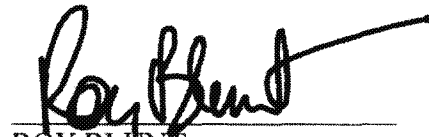
sector, as well as offer constructive solutions that represent the win-win solutions you are seeking.

We appreciate your continued leadership on this issue and look forward to working with you.

Sincerely,

  
JOHN THUNE  
United States Senator

  
DEB FISCHER  
United States Senator

  
ROY BLUNT  
United States Senator

  
CHARLES E. GRASSLEY  
United States Senator

  
JONI K. ERNST  
United States Senator

# United States Senate

WASHINGTON, DC 20510

July 26, 2018

Andrew Wheeler  
Acting Administrator  
Environmental Protection Agency  
1200 Pennsylvania Avenue, NW  
Office of the Administrator, 1101A  
Washington, DC 20460

Dear Acting Administrator Wheeler:

In recent weeks, media reports indicated that the Environmental Protection Agency (EPA) considered a proposal to retroactively reallocate the Renewable Fuel Standard (RFS) compliance obligations from small refineries, which have received hardship relief, to other refineries and importers. Thankfully, in the proposed rule setting renewable volume obligations for 2019 (the "2019 RVO"), EPA abandoned this ill-considered plan. However, given the requests from biofuel interests, we are writing this letter to state very clearly our strong opposition to any future resurrection of this proposed policy.

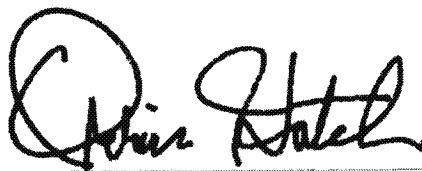
There is little doubt that retroactively reallocating obligations would only compound the problems with the RFS. Simply put, a retroactive reallocation of small refinery obligations to other obligated parties is illegal and fundamentally unfair, imposing a financial penalty on refineries that have otherwise been in compliance with the law. By so doing, retroactive reallocation violates the principles of due process and administrative law and is clearly not authorized under the Clean Air Act. Further, retroactive reallocation injects radical uncertainty into the market for compliance credits, hurting the U.S. refining base, its workers, and the communities they serve.

Retroactive reallocation is also inconsistent with sound energy policy. A robust domestic refining sector is a key element to national security, as administrations of both political parties have found. Refineries are a source of high-paying manufacturing jobs, thousands of which are placed at risk when RFS compliance obligations aren't reasonable and when compliance costs escalate. All of this is placed in harm's way if EPA retroactively reallocates the obligations of small refineries, which have received hardship relief. We urge EPA to maintain the policy articulated in the proposed 2019 RVO and not deviate from sound policy and the law by trying to fashion any form of retroactive reallocation. Any other direction undermines national security, threatens higher gasoline prices for U.S. consumers, and risks economic harm to fuel providers and the loss of manufacturing jobs.

Sincerely,





James M. Inhofe  
United States Senator

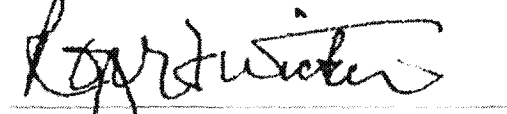


Orrin G. Hatch  
United States Senator


  
Michael B. Enzi  
United States Senator


  
Johnny Isakson  
United States Senator


  
John Barrasso, M.D.  
United States Senator

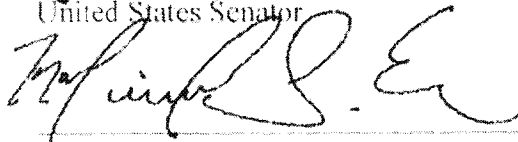
  
Roger F. Wicker  
United States Senator


  
James E. Risch  
United States Senator

  
Joe Manchin III  
United States Senator

  
John Boozman  
United States Senator

  
Pat Toomey  
United States Senator

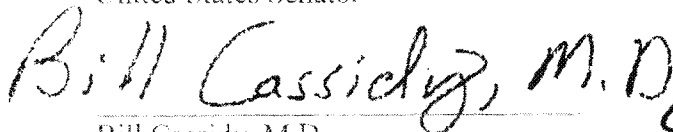
  
Michael S. Lee  
United States Senator

  
Jeff Flake  
United States Senator

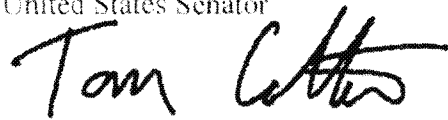


Ted Cruz  
United States Senator

  
Shelley Moore Capito  
United States Senator

  
Bill Cassidy, M.D.  
United States Senator

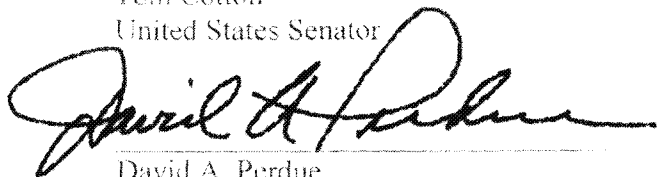
  
James Lankford  
United States Senator

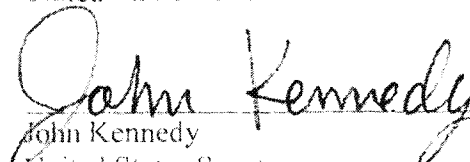


Tom Cotton  
United States Senator



Steve Daines  
United States Senator

  
David A. Perdue  
United States Senator

  
John Kennedy  
United States Senator

  
Cindy Hyde-Smith  
United States Senator

Message

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**From:** Sutton, Tia [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=25E87403F63143ACBB959446512A372C-SUTTON, TIA]  
**Sent:** 7/11/2018 6:42:08 PM  
**To:** Birgfeld, Erin [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=3383bc15dd5542e5bff5c3de13ba9bf2-EBIRGFEL]; Hengst, Benjamin [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=c414e2bf04a246bb987d88498eefff06-Hengst, Benjamin]  
**CC:** Dallas Burkholder (burkholder.dallas@epa.gov) [burkholder.dallas@epa.gov]  
**Subject:** RE: Reuters: EPA scraps detailed plan to force U.S. refiners to blend more biofuels

Great. I will admit that it's always a little weird to see my emails/name in the docket, but I've never actually been called out by name on the however many emails we send back & forth to OMB. Yay transparency!

---

**From:** Birgfeld, Erin  
**Sent:** Wednesday, July 11, 2018 2:39 PM  
**To:** Hengst, Benjamin <Hengst.Benjamin@epa.gov>; Sutton, Tia <sutton.tia@epa.gov>  
**Subject:** FW: Reuters: EPA scraps detailed plan to force U.S. refiners to blend more biofuels

Tia – you made the news...

---

**From:** Jones, Enesta  
**Sent:** Wednesday, July 11, 2018 1:45 PM  
**To:** AO OPA Individual News Clips <AO\_OPA\_Ind\_News\_Clips@epa.gov>  
**Subject:** Reuters: EPA scraps detailed plan to force U.S. refiners to blend more biofuels

**EPA scraps detailed plan to force U.S. refiners to blend more biofuels**

<https://www.cnbc.com/2018/07/11/reuters-america-epa-scraps-detailed-plan-to-force-u-s-refiners-to-blend-more-biofuels.html>

By Jarrett Renshaw

July 11, 2018

NEW YORK (Reuters) - The U.S. Environmental Protection Agency ditched a detailed plan that would have forced refiners to blend more biofuels into their gasoline and diesel in 2019 to compensate for volumes likely to be exempted under the agency's small refinery hardship waiver program, according to newly released EPA documents.

The plan would have boosted the renewable fuel blending obligation for the refining industry to 11.76 percent from 10.88 percent to offset volumes lost under the waiver program, which has been expanded sharply under President Donald Trump's EPA, and keep overall blended volumes on target.

The idea was aimed at assuaging the powerful U.S. corn lobby which has accused Trump's EPA of undermining demand for biofuels like corn-based ethanol through the waiver program, but was scrapped amid intense protest from the refining industry.

"What this shows is the EPA acknowledges it has the authority and the ability to reallocate the volumes lost under the small refinery exemption program," Geoff Cooper, an executive at the Renewable Fuels Association, said on Wednesday.

The EPA said the documents reflect the agency's process for administering the Renewable Fuel Standard (RFS), which is done in conjunction with the departments of Energy and Agriculture as well as the White House.

The move would have likely rallied compliance credit prices that have plunged to multi-year lows amid reports of the agency's expansion of the waiver program.



## CONTENTIOUS PROGRAM

Under the RFS, the EPA must set annual requirements for the volume of renewable fuels that oil refiners and other fuel companies must blend with their petroleum-based products. The 2005 policy has been a source of contention between powerful corn and oil lobbies in Washington.

The agency also has the power to exempt smaller refineries from the blending requirements if they can prove that complying with the regulation would cause them financial stress.

The EPA, under recently-resigned director Scott Pruitt, has roughly tripled the number of exemptions granted to small refiners, angering Midwest farmers and their legislative backers who say he effectively lowered the annual biofuels mandate.

Exemptions representing some 2.25 million gallons worth of biofuel were granted for 2017 and 2016, according to the EPA. That includes waivers covering 1.46 million compliance credits, called RINs, in 2017, the EPA said.

Under the scrapped plan, the EPA would have estimated the number of gallons of gasoline and diesel that would likely be exempted in 2019 under the small refinery waiver program and force the larger refineries to make up the difference.

The EPA projected some 8.18 billion gallons of gasoline and 5.44 billion gallons of diesel produced by small refiners would be exempt from the requirements in 2019, the documents showed.

The documents were published by the EPA as part of requirements aimed at providing the public more insight into federal decision making. Reuters and other news outlets reported on the EPA's 2019 volumes proposal, but the documents provide new details about the agency's approach.

The proposed changes came in a June 19th email from Tia Sutton of the EPA to the White House Office of Management and Budget. Pruitt, who resigned amid ethics scandals last week, had just returned from a Midwest tour where he met with farmers angry over his expansion of the exemption program.

A day later, some legal justification was added to the proposed rule, stating "this approach is consistent with the text of our regulations, which accounts for the amount of gasoline and amount of diesel projected to be produced by exempt small refineries in 2019."

Refiners learned of the changes and made a full-court press to the agency and White House to reverse it.

Refinery-state senators Ted Cruz of Texas and Pat Toomey of Pennsylvania, both Republicans, had calls with Pruitt a day after reports of the changes circulated, according to Pruitt's public schedule.

On June 22, the EPA struck the changes in a new email to the OMB office, the documents showed.

The final proposed rule was published on June 26.

Message

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**From:** Sutton, Tia [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=25E87403F63143ACBB959446512A372C-SUTTON, TIA]  
**Sent:** 4/18/2018 8:53:40 PM  
**To:** OAR Briefings [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=2da922b09b7a4a18a19571005bff0297-OAR Briefin]  
**CC:** Hengst, Benjamin [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=c414e2bf04a246bb987d88498eefff06-Hengst, Benjamin]  
**Subject:** Materials for Thursday's 3pm OTAQ Fuels Weekly  
**Attachments:** 4\_18\_18 Wehrum small refinery update.docx; Small Refinery Letters+FOIA+Congr Requests.docx; 4\_18\_18 Small Refinery Press Inquiries Since Last Week.docx; Agenda for Fuels Weekly with Bill W 4.19.18..docx

Hi all,

Attached are following materials for tomorrow's 3pm "OTAQ Fuels Weekly":

- Agenda
- Small Refinery Update
- Small Refinery Letters, FOIAs, Congressional Requests
- Small Refinery Press Inquiries

Thanks!

-Tia

Message

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**From:** Sutton, Tia [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=25E87403F63143ACBB959446512A372C-SUTTON, TIA]  
**Sent:** 5/16/2018 6:42:53 PM  
**To:** Hengst, Benjamin [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=c414e2bf04a246bb987d88498eefff06-Hengst, Benjamin]  
**Subject:** QFRs for your review - on a ridiculously short timeframe of course  
**Attachments:** House IE FY2019 EPA QFRs- OAR Questions\_OTAQ responses.docx

Attached is what I just left in your inbox. Apologies for the lateness in getting to you – I had asked for draft responses by 10am...but well, you see what time it is. Anyhoo – any chance of you possibly being able to look at this later today/tonight? OAPPS wanted our drafts in by COB today. Hopefully it's a pretty quick review for you since most of the language in our responses is taken from old QFRs/Administrator statements/controls that have recently gone out.

And this is also on X at: X:\\_X-drive (DC IO shared)\Congressional\Hearings\QFRs\2018\4-26-18 Pruitt HAC

Message

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**From:** Jason Sloan [jsloan@csg.org]  
**Sent:** 3/23/2018 6:15:52 PM  
**To:** Traylor, Patrick [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=b6d06c6b766c4b4b8bfd6b0fea4b998-Traylor, Pa]  
**Subject:** RE: Small Refinery Exemptions

Patrick,

Think you sent this to Clint's old email, rather than his EPA email.

Thanks,

Jason E. Sloan  
Executive Director  
Association of Air Pollution Control Agencies  
1776 Avenue of the States  
Lexington, KY 40511  
859.244.8043 – office  
[jsloan@csg.org](mailto:jsloan@csg.org)  
<http://www.cleanairact.org>

---

**From:** Traylor, Patrick [mailto:traylor.patrick@epa.gov]  
**Sent:** Friday, March 23, 2018 2:13 PM  
**To:** Gunasekara, Mandy <Gunasekara.Mandy@epa.gov>; Jason Sloan <jsloan@csg.org>  
**Cc:** Baptist, Erik <Baptist.Erik@epa.gov>  
**Subject:** Small Refinery Exemptions

I understand that the total number of RINs that may be affected by the current batch of exemption letters is in excess of one billion. Being careful to stay in my lane here, has there been thought given to the potential for this level of exemption to move the market and whether at least a brief public statement should be made by EPA so that the whole marketplace has the same general information in terms of volume affected? Are there OCIR implications?

**Patrick Traylor**  
Deputy Assistant Administrator  
Office of Enforcement and Compliance Assurance  
U.S. Environmental Protection Agency  
(202) 564-5238 (office)  
(202) 809-8796 (cell)